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VOLUME 2—1927

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VOLUME 3—January-June, 1928

1. An experimental study of the olfactory sensitivity of the white rat—J. R. Liggett
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VOLUME 4—July-December, 1928

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2 & 3. Determination of a content of the course in literature of a suitable difficulty for junior and senior high school students—M. C. Burch
4 & 5. Methods for diagnosis and treatment of cases of reading disability—M. Monroe
6. The relative effectiveness of lecture and individual reading as methods of college teaching—E. B. Greene

VOLUME 5—January-June, 1929

1. The age factor in animal learning: I. Rats in the problem box and the maze—C. P. Stone
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3. Which hand is the eye of the blind?—J. M. Smith
4. The effect of attitude on free word association-time—A. G. Ekdahl
5. The localization of tactual space: A study of average and constant errors under different types of localization—L. E. Cole
6. The effects of gonadectomy, vasotomy, and injections of placental and orchic extracts on the sex behavior of the white rat—H. W. Nissen

VOLUME 6—July-December, 1929

1. Learning and growth in identical infant twins: An experimental study by the method of co-twin control—A. Gesell and H. Thompson
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4. A vocational and socio-educational survey of graduates and non-graduates of small high schools of New England—A. D. Mueller
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6. An experimental study upon three hundred school children over a six-year period—N. D. M. Hirsch

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1. The amount and nature of activities of newborn infants under constant external stimulating conditions during the first ten days of life—O. C. Irwin
2. Race and social differences in performance tests—S. D. Porteus, *et al.*
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VOLUME 9—January-June, 1931

1 & 2. The status of the first-born with special reference to intelligence—H. H. Hsiao
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5. An historical, critical, and experimental study of the Seashore-Kwalwasser test battery—P. R. Farnsworth
6. A comparison of difficulty and improvement in the learning of bright and dull children in reproducing a descriptive selection—F. T. Wilson

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1. A comparative study of a group of southern white and negro infants—M. B. McGraw
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VOLUME 11—January-June, 1932

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4. A critical study of two lists of best books for children—F. K. Shuttleworth
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VOLUME 12—July-December, 1932

1. Family resemblances in verbal and numerical abilities—H. D. Carter
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3 & 4. The growth of adaptive behavior in infants: An experimental study at seven age levels—H. M. Richardson
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VOLUME 13—January-June, 1933

1. A critique of sublimation in males: A study of forty superior single men—W. S. Taylor
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1. Studies in the psychology of tone and music—P. R. Farnsworth
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1. Organization of behavior in the albino rat—R. L. Thorndike
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3. Differences between two groups of adult criminals—R. S. Tolman
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   The assessment of parental attitudes in relation to child adjustment—E. J. Shoben, Jr.
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VOLUME 40—July-December, 1949

1. An experimental study of what young school children expect from their teachers—B. Biber and C. Lewis
   A study of the relative effects of age and of test difficulty upon factor patterns—H. A. Curtis
   A projective experiment using incomplete stories with multiple choice endings—J. K. Seaton
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VOLUME 41—January-June, 1950

1. Some psychological and educational aspects of pediatric practice: A study of well-baby clinics—L. H. Blum
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   Age trends in children's evaluation of teacher-approved and teacher-disapproved behavior—S. L. Witryol
   The relationship between level of vocational aspiration and certain personal data: A study of some traits and influences bearing on the prestige level of vocational choice—J. Stubbins

VOLUME 42—July-December, 1950

1. Personality patterns of suicidal mental hospital patients—N. L. Farberow
   Sex-rôle identification in young children in two diverse social groups—M. Rabban
2. A study of the influence of the social field on individual behavior: As revealed in the expression of hostility and warmth by neurotics and paranoid schizophrenics in discussion group situations—D. Shapiro
   An experimental study of avoidance—R. F. Hefferline

VOLUME 43—January-June, 1951

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DISPLACEMENT AND ORALITY IN TIV WITCHCRAFT*

Department of Psychology, Rice University

D. R. PRICE-WILLIAMS[1]

A. INTRODUCTION

The relationship of witchcraft practices among the Tiv people of Central Nigeria to their notions and behavior regarding disease has been described in previous publications (1, 2, 8, 13). These previous studies have analyzed the relationship in terms of social structure. It is the intention of this article to provide a complementary analysis in terms of socialization theory and psychological ideas of displacement.

In brief, the general outline of illness and witchcraft practices among the Tiv is as follows. If a man becomes persistently ill or is afflicted by a generally recognized severe disease, it is assumed that either he has offended a supernatural agency, known as *akombo,* or that he is being secretly assailed by a member of the *mbatsav,* which is the collective name for a supernatural class of people who have an ambivalent role in Tiv society. On the one hand, they are the custodians of the land and, on the other, they are blamed for such matters as famine, bad luck and illness. The concept of *akombo,* which can be variously translated as supernatural agencies (which can be manipulated by the *mbatsav*) and as the symptoms of a disease and again as the name given to emblems which Tiv use as protections against the same supernatural agencies, has a more general connotation than illness alone. Disease is only one manifestation of the *akombo* force. The notion also relates to fertility of crops, birth, marriage, and various other aspects. The diagnosis of the particular piece of misfortune or illness is made by a diviner. He recommends what kind of ceremony should be enacted, what branch of kin should attend, and the place where the ceremony should be done. The "patient" then invites the relatives to attend, and a ceremony is performed by a person who is generally regarded by Tiv as being capable of "repairing the matter"—as the ceremony is called. Central to such ceremonies is the sacrifice of animals, such as goats or chickens,

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[1] The material from which this article was drawn was originally offered as part requirements for the degree of Doctor of Philosophy in the University of London, 1963. I wish to thank Professor S. G. Lee, University of Leicester, and Dr. H. T. Himmelweit, London School of Economics, for their advice with the material.

and the application of plant medicines to the patient. Also centrally important in the ceremony is the social feast of the sacrificed animals; all kin join in, either eating the animals there and then, or taking pieces back to absent kin who were not able to attend. When, in the more severe case—such as an illness which persists in spite of the performance of such ceremonies or such as a death —it is necessary for the identification of the member of the *mbatsav* who is thought to be secretly causing misfortune to a person, a meeting or moot is held which can be conducted by a senior member of the kindred or clan. It is important from the point of view of the present analysis to note the social fact that the *mbatsav* are equated with agnates (3, 8).

It is possible to interpret the ceremonies relating to *akombo* and the *mbatsav* as a means of regulating hostility between kin. Such a sociological interpretation in terms of conflict between members of a kindred does justice to the facts. However, without in any way rejecting this interpretation, a psychological interpretation by way of a socialization approach is also possible. We shall inspect Tiv child-training practices with particular respect to the way in which aggression is handled, on the one hand; and we shall analyse Tiv folk stories, on the other hand, to see whether there may not be some link between these two aspects of Tiv society; and then we will look at the witchcraft practices from the point of view of displacement theory. Spiro (16, p. 486) has made a useful distinction between culturally constituted and privately constituted defense mechanisms. One of these defense mechanisms which he describes is very relevant to the Tiv case.

> [This] type of culturally constituted defense uses materials provided by the social or cultural systems, not for the containment of forbidden motives, but for their distortion, and hence, for their disguised gratification. This type, which is most frequently exemplified by culturally constituted displacement mechanisms, has a number of sub-types. Thus social systems which include headhunting raids permit the displacement of aggression from in-group to out-group. Similarly, cultural systems that postulate the existence of malevolent supernaturals permit the projection and displacement from in-group to out-group. In both these sub-types, a forbidden motive (in-group aggression) is allowed disguised gratification by a cognitive distortion of either its object and/or its agent—a distortion which is based on culturally constituted beliefs or behavior patterns.

We hope to show that the Tiv witchcraft case exemplifies Spiro's second example and, through tracing the path of aggressive behavior from childhood through to its projection in folk stories, the mechanism of displacement can be shown in detail.

B. Analysis of Child-Training Practices

1. *Field Observations*

The categories and indices for observation of Tiv children were sponsored from those described by Whiting and Child (18). Owing to difficulties of a methodological kind, described elsewhere (14), the indices were reduced from the original Whiting and Child descriptions, and are described below. The categories employed were those which have been commonly used in socialization analyses (5): namely, oral, anal, dependence, sexuality, and aggression. Following Whiting and Child these systems or categories of behavior were observed on two dimensions—gratification and frustration. Gratification was measured by the number of times parents encouraged their children on the index observed; frustration was measured by the number of times both verbal and physical punishment (treated separately in the analysis) was meted out by parents or elders to Tiv children, for the various indices. Verbal punishment consisted of such injunctions as "don't" or "don't do that" (translated directly from Tiv); punishment of a physical kind included slappings with stick or hand. The indices are listed below.

a. Comfort, protection, and warmth. The measure of these factors, which Whiting and Child call "initial nursing indulgence," is the number of times demands for breast feeding, solace or comfort, assistance or protection, by Tiv children of their parents or elders, was either encouraged or frustrated by the parents.

b. Spontaneous soiling and urination. The number of times Tiv children were tolerated or punished by their parents or elders for performing these functions in any place where the children wished.

c. Demands for independence. The number of times Tiv children were encouraged or punished for being self-reliant. Points such as the following were included under this heading: wandering away from the compound on their own, getting their own food, making their own pastimes without assistance from elders, not running to their parents or elders in distress.

d. Immodesty and heterosexuality. Whiting and Child had also included masturbation and homosexuality under this heading, but these were never witnessed among the Tiv. Actually even the terms "modesty" and "immodesty" were difficult to interpret as this depended very much upon the Tiv perception of the terms. What was finally resolved was the number of times heterosexual play and blatant exposure of sexual parts were either encouraged or punished by parents and elders.

e. Aggressive tendencies. The number of times Tiv children were encour-

aged or punished for behavior such as temper tantrums, physical and verbal aggression, property damage and disobedience.

All the children studied lived in the compound of the clan-head, where the writer himself was living during the field study. The choice of the children and the families to which they belonged was chosen on the basis of rapport with the writer. The observations necessitated that an informal and easy access to the huts of families should be enjoyed. The sample was divided into two groups: (*a*) Children of an age range from a few months old to 4 years of age, approximately. The unit of observation in this first group was the family to which these children belonged. Ten families were observed. The families differed in the number of children per household; the average was three, and the minimum number, two. There were five more boys than girls in the total set. (*b*) Children of an age range from 5 to 10, approximately. These children belonged to families other than those of the first group. In this set the unit of analysis was the child himself and not the family. There were five boys and five girls.

A period of exactly 12 weeks was chosen for the extent of the observations. The time was at the latter end of the field study and constituted the months of September, October, and November. The observation times consisted of two half-hour periods during a week, per family and per individual child of the second group. In the case of the family units, the action of the parents or elders was taken as the unit of recording, as a unitary event. For example, in the case of punishment, if a child were beaten for an offence, this was recorded as a single instance, irrespective of the number of times he was actually beaten for this offence.

The results of these observations are given in Tables 1 and 2. Table 1 lists the indices in full with the frequency of observations for each index, the mean for the family unit or the individual children, the standard deviation, and lastly the coefficients of variation. This last measure is included so that a relatively large or small variation *between* the indices for either the families or the children can be noted. The standard deviation serves as a reliability indicator *within* any index of the amount of dispersion within the families or the children. Table 2 assesses the results with reference to the contrast between gratification and frustration. The raw data consist of the number of times the indices of both gratification and frustration were witnessed over an equivalent period of time. The relative strength of gratification and frustration can be assessed, for any index, by merely subtracting the number of times the latter was observed from the number of times the former was observed. Lastly, in Table 3, the results are analyzed to show the progression of the differences be-

tween gratification and frustration from the younger children of the families to the older individual children. This is possible only with a few indices, but it raises an important point which will be referred to later.

2. *Assessment by Judges*

The field observations were necessarily conducted on a very small sample. It was decided to supplement these observations by having a set of judges rate material from the Human Relations Area Files on the "Tiv Life Cycle."[2] This material, which relates to socialization, was collected by two anthropologists (L. Bohannan and P. Bohannan) some years previous to our own field study and was collected from areas other than our own. Eleven judges from a Personality and Culture student class at the University of Kansas were instructed as follows. They were first asked to read through the "Tiv Life Cycle" notes at least twice, so as to familiarise themselves with the material. Secondly, they were given a document headed "Indices of Child Training." This consisted of 10 indices of child training, similar to the ones already listed for the field observations, with examples of the maximum instance of an index and the minimum instance of an index. These examples were taken from Whiting and Child (18), which book quotes examples from the ethnographic literature of what were regarded as maximum and minimum instances. The judges therefore were given a standard range in which to assess the "Tiv Life Cycle" material. As a third step they were then asked to go through this material again, marking on a sheet the particular rating, for each index, which they considered the Tiv material to indicate. The ratings ranged as follows: maximum, almost maximum, above median, median, below median, almost minimum, minimum. An eighth category was provided—not enough information—in case the lack of material warranted it. The judges were asked to state after each assessment whether they were very confident about their judgments, confident, or not sure. A total time of six to eight weeks was given for the task. The judges were instructed to take their time and not hasten their assessments.

Table 4 gives the results of the judges' assessments. The degree of inter-judge agreement for each of the child-training indices is assessed by assuming the null hypothesis that the ratings were due to chance. For each index, all that needs be taken is the number of judges scoring pluses or minuses (that is, above or below the median, regardless of how much above or below). For each index, the number of judges marking "not enough information" and the num-

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[2] Human Relations Area Files, Yale University. Section by Bohannan and Bohannan.

TABLE 1
TOTAL OBSERVATIONS FOR CHILD-TRAINING INDICES WITH MEANS, STANDARD DEVIATIONS, AND COEFFICIENTS OF VARIATION

Index	Total	*M*	*SD*	*CV*
Encouragement of Comfort, Protection, and Warmth (Families)	211	21.1	3.1	14.7%
Encouragement of Spontaneous Soiling and Urination (Families)	47	4.7	2.1	45.6%
Encouragement of Demands for Independence (Children)	256	25.6	3.7	14.4%
Encouragement of Immodesty and Heterosexual Play (Families)	15	1.5	1.1	74.5%
Encouragement of Immodesty and Heterosexual Play (Children)	6	0.6	0.3	47.1%
Encouragement of Aggressive Tendencies (Families)	226	22.6	4.3	18.7%
Encouragement of Aggressive Tendencies (Children)	206	20.6	4.4	21.4%
Verbal Punishment for Demands for Comfort, Protection, and Warmth (Families)	44	4.4	1.7	38.0%
Verbal Punishment for Spontaneously Soiling and Urinating (Families)	86	8.6	2.1	24.2%
Verbal Punishment for Independence (Children)	171	17.1	3.7	21.8%
Verbal Punishment for Immodesty and Heterosexual Play (Families)	45	4.5	1.5	21.8%
Verbal Punishment for Immodesty and Heterosexual Play (Children)	116	11.6	3.0	26.1%
Verbal Punishment for Aggressive Acts (Families)	118	11.8	3.2	27.4%
Verbal Punishment for Aggressive Acts (Children)	208	20.8	1.7	8.0%
Physical Punishment for Demands for Comfort, Protection, and Warmth (Families)	54	5.4	2.2	40.5%
Physical Punishment for Spontaneous Soiling or Urinating (Families)	84	8.4	1.3	15.5%
Physical Punishment for Independence (Children)	113	11.3	2.2	19.5%
Physical Punishment for Immodesty and Heterosexual Play (Children; no observations for Families)	60	6.0	1.5	24.7%
Physical Punishment for Aggressive Acts (Families)	75	7.5	2.0	26.1%
Physical Punishment for Aggressive Acts (Children)	166	16.6	2.9	17.2%

ber actually scoring the median were subtracted from the total. Also, "not sure" judgements were not accepted. For the remainder of judgements it is assumed that $P = Q = 1/2$. The second and third columns of Table 4 show the degree of significance for interjudge agreement with the statistic used.

From Table 4 the following agreement is reached by the judges:

(*a*) There is above median indulgence on initial nursing. (*b*) There is below median severity of weaning. (*c*) There is above median indulgence of

TABLE 2
CONTRAST BETWEEN GRATIFICATION AND FRUSTRATION OF THE CHILD-TRAINING INDICES

Index	Verbal punishment	Physical punishment
Comfort, Protection, and Warmth	167	157
Soiling and Urinating	— 39	— 37
Independence	85	123
Immodesty and Heterosexual Play (Families)	— 30	not witnessed[a]
Immodesty and Heterosexual Play (Children)	— 39	— 54
Aggressive Acts (Families)	108	151
Aggressive Acts (Children)	— 2	40

[a] "Not witnessed" was not interpreted as zero; otherwise one could have entered the score into Table 3, indicating change. The reason for not entering zero was that some physical punishment could have been given for this index at nighttime or in the huts, when the investigator was not in a position to observe.

TABLE 3
CONTRAST BETWEEN GRATIFICATION AND FRUSTRATION OF INDICES ARRANGED TO INDICATE CHANGES FROM YOUNGER TO OLDER CHILDREN

Index	Type of punishment	Younger children	Older children	Increase/decrease
Immodesty and Heterosexual Play	verbal	— 30	—39	3.3% increase
Aggressive Acts	verbal	108	— 2	94% decrease
Aggressive Acts	physical	151	40	73% decrease

anal training. (*d*) There is below median severity of anal training. (*e*) There is above median indulgence of immodesty. (*f*) There is above median indulgence of dependence training.

3. *Comparison of the Two Child-Training Studies*

The results of the judges' estimates agree with the field observations that Tiv parents give protection and comfort to young children. Our observations showed that there was a frustrating tendency in the anal and sexual systems while the judges' ratings express a lack of severity. These disparities are not crucial as the quantitative differences shown in the field observations for these

indices are very small. The really important point to be made in comparing the two sets of data concerns changes of a longitudinal nature. The field observations, when viewed progressively from younger to older children, show that there is a slight increase in the tendency to inhibit sexual manifestations, and a very large decrease in encouraging aggression. It would appear from this sample that Tiv children are encouraged early in their life to show aggressive tendencies, only to be inhibited in this at a later stage of their lives. In the Tables the dependence system has been entered as its opposite, that is *in*-dependence. If we regard the earlier component of Comfort, Protection, and Warmth as indicating early dependence on parents, which seems a reasonable assumption, then there would seem to be a radical shift away from this as the child grows older. In other words, as the child gets older he is trained to be less aggressive and more independent. Turning now to the judges' estimates, we find that it is exactly these two indices of aggression and severity of inde-

TABLE 4
ASSESSMENT OF CHILD-TRAINING OBSERVATIONS BY JUDGES

Index	p	Statistic[a]
Initial Nursing Indulgence	.001	chi square
Severity of Weaning	.011	binomial test
Anal Initial Indulgence	.044	binomial test
Severity of Anal Training	.016	binomial test
Immodesty Indulgence	.016	binomial test
Dependency Indulgence	.004	binomial test
Severity of Independence	.344	binomial test
Indulgence of Aggression	.344	binomial test

[a] As a result of the subtractions of scores for the median, for "not enough information" and for the confidence of judgment, the total number of judges' scores varied from one index to another. Chi-square could be used only with the first index as the expected frequency was above five (5.5). It could not be used with the remainder of the indices. As, in all these other indices, $P = Q$—that is, the total number of judges was even—the probability level was reached by reference to Table D of Siegel (15), where the probability level for small samples is given from the binomial test.

pendence training upon which there was not a significant agreement. The material from which the judges drew their conclusions made no sufficient differentiation in age differences. As this is the typical kind of material from which such a cross-cultural methodology as the Whiting and Child (18) approach draws its data, the point needs to be made that it is somewhat inadequate when conclusions are made in general terms of "Tiv childhood." We wish to know whether we are talking of a Tiv child at the age of 3 or at the age of 8, for example. This point could apply to conclusions drawn from other societies as well and may be met in the quantitative data expected in the recent

Whiting study (17). In the Tiv case, a longitudinal change may account for the failure of the judges to agree on these indices, as the material on which they were assessing covered both very young and older children's behavior without in any way distinguishing one from the other.

C. Analysis of Tiv Folk Stories

Cross-cultural analyses of folk tales as examples of what Kardiner (10) originally called "projective systems" have been carried out by Child, Storm, and Veroff (6), by Wright (19), and by McClelland and Friedman (11). The justification for taking a folk tale to analyze a socialization system is given by McClelland and Friedman:

> A folk tale represents a kind of summation of the common thought patterns of a number of individuals and as such may be considered the rough equivalent of a statistically modal or average story obtained from a sample of stories told by different individuals. Thus it may take the place of testing a large number of individuals from the culture (11, p. 245).

In the book on the Tiv people by an older ethnographer (1), a number of folk stories have been collected. These were submitted to the previous judges for assessment. The aim was to find out whether any themes which had been prominent in child training tended to recur in this aspect of Tiv life. The judges were first asked to read through the set of 16 folk tales and become thoroughly acquainted with their content. They were then given two tasks.

1. The judges were presented with a list of nine behavioral systems with definitions. These were taken from Whiting (17, p. 7) as follows:

> *Succorance*: Asking others for help.
> *Nurturance*: Giving help or emotional support.
> *Self-reliance*: Doing things for one's self.
> *Achievement*: Striving to meet internal standards of excellence.
> *Responsibility*: Performing one's expected role duties.
> *Obedience*: Attempting to meet the demands of others.
> *Dominance*: Attempting to change others' behavior.
> *Sociability*: Making friendly approaches to other individuals.
> *Aggression*: Hurting others.

The judges were asked to read through the stories again and to rank for each one the behavioral systems which they considered the story to exhibit. There were no restrictions on the number of systems that were to be ranked; just one could be noted, or the entire set. The ranking was in their perceived order of importance.

2. As a second task the judges were given the five original systems of

Whiting and Child (18)—oral, anal, sexual, dependence, and aggression—with descriptions of the kind of behaviors indicated by these labels. The judges were instructed to make a frequency count for each story of these five systems. For example, if in one story occurred the sentence: "The lion attacked the sheep and ate it," this was to be counted as one mark for the aggression system and one mark for the oral system. The sexual system was expanded to refer not only to overt sexual behavior, but also to instances of marriage, choosing a wife, courtship, and so forth. The judges were explicitly instructed not to try to force interpretations, but merely to note down those systems about which they were certain.

Table 5 shows the results of the first four rankings by the judges on the nine behavioral systems.[3] In the analysis we are not so much interested in the rankings for each story as in the rankings for all 16 stories combined, in order to see if there was some overall impression emerging from the themes of the different stories. It is clear from this part of the investigation that aggression emerges as a clear impression. This impression is strengthened by noting that dominance is in the second position. In view of the childhood data showing that independence was encouraged, it is interesting to note also that self-reliance is in the third position. Table 6 gives the results of the second part of the investigation, together with reliability data. Again the aggression system shows the highest frequency, while orality is next highest. The high frequency of the latter invited a closer analysis. A division was made between "oral gratification" and "oral aggression." In the first case, responses were counted where there was a relatively benevolent aspect of orality—such as having a feast, feeding others—against responses of the second case where an aggressive aspect was mentioned in the tales—such as eating others. These results disclosed five instances of oral gratification, against 18 instances of oral aggression.

D. Discussion

The findings presented above are better understood by relating them to Tiv ideas of *akombo* and *mbatsav*. An *akombo* has a set of ritual regulations, which are primarily laws, taboos, usages, and prohibitions (2). If a Tiv violates any of these, purposely or accidentally, then he allows himself to be vulnerable to *akombo* forces. The language which is used of an *akombo* force indicates its possible aggressive tendency: it "seizes" or "catches" people, though this does not necessarily indicate any animistic notion. Also, as explained previously, an *akombo* can be manipulated by the *mbatsav,* in which case it takes on the

[3] The reliability index is not given in this Table, as it was originally worked out for each individual story. The figures are given in Price-Williams (14).

character of an instrument used for aggressive purposes. The *mbatsav,* by definition, *are* aggressive. The connection of food and eating with the notions of *akombo* and *mbatsav* shows also a malevolent aspect of Tiv thought. One of the strongest injunctions in an illness ceremony is that only those who have

TABLE 5
FREQUENCY OF THE FIRST FOUR RANKINGS BY JUDGES FOR BEHAVIORAL SYSTEMS

System	Rankings 1st	2nd	3rd	4th	Total
Succorance	11	16	13	4	44
Nurturance	14	19	7	5	45
Self-reliance	28	13	6	4	51
Achievement	18	11	5	0	34
Responsibility	8	9	5	6	28
Obedience	3	14	13	1	31
Dominance	30	21	9	4	64
Sociability	7	10	6	6	29
Aggression	53	33	18	9	113

TABLE 6
FREQUENCIES OF JUDGES' ESTIMATES FOR CHILD-TRAINING SYSTEMS FOR FOLK TALES[a]

Story	Oral	Anal	Sexual	Dependence	Aggression
I	3	0	8	8	13
II	15	0	8	5	34
III	6	0	0	16	9
IV	3	0	11	4	12
V	0	0	1	1	17
VI	12	0	0	2	6
VII	31	0	0	8	32
VIII	0	0	0	1	6
IX	16	0	0	16	13
X	15	0	0	27	41
XI	8	1	8	0	5
XII	29	0	0	3	17
XIII	8	1	0	3	28
XIV	35	0	0	1	22
XV	18	0	0	4	13
XVI	9	0	8	9	8
Total	208	2	44	107	276

[a] The Roman numerals refer to the order of the folk tales as collected from Abraham (1) and reproduced in Price-Williams (14). The means and standard deviations of the judges for the five systems are as follows. Aggression: $M = 25.09$, $SD = 8.94$; Oral: $M = 20.6$, $SD = 11.44$; Dependence: $M = 11.8$, $SD = 9.0$; Sexual: $M = 4.3$, $SD = 3.0$. There were too few anal responses for means to be taken.

participated in the ceremony can eat the sacrificial food. If somebody eats this food who has not participated, then, it is thought, the *akombo* force will seize him. The Bohannans report (2, p. 88) that " 'eating the *akombo*' is of great importance in understanding the activities of the *mbatsav.*" The tradition

is that by eating human flesh one is able to increase one's own *tsav* (magical substance). It is also thought that the *mbatsav* disinter a corpse, cut it up, and eat it. In Tiv lore (8) there exist ideas of human sacrifice by way of a flesh-debt, as it is known. If a man has eaten human flesh (by being a member of the *mbatsav*), then he is obliged to return to the man who had killed this victim, *another* victim, in order to clear the debt. It used to be thought that Tiv actually did perform human sacrifice, but this was regarded by the Bohannans with some suspicion. As far as the present study is concerned, what is important is not the truth of the practice but the fact that such ideas exist in fantasy. What is perhaps surprising is the failure to relate such oral aggression to events in Tiv childhood. Both the field observations and the conclusion of the judges working on the Tiv Life Cycle notes agreed that early nursing experiences of Tiv children were benevolent and gratifying. Length of weaning also failed to account for the oral aggression in fantasy. From a sample of 10 families it was found that the average age of weaning was 31.7 months, which narrowly agrees with the figure reported in the "Tiv Life Cycle," which was between 2 and 2-1/2 years of age. On the other hand, preoccupations with food [(8, 14); see footnote 2] abound in Tiv social life, which—in a land where food is often scarce, where famines often occur, and where the occupants are subsistent farmers—is hardly surprising. As Akiga has commented (8, p. 314): "Women and food are two things about which a Tiv will boast." Also it is noted that there is a social entity defined by "those who eat one *akombo*" or "those who eat akombo together" (2, p. 28). Food is thus seen to be an integral element in Tiv life and thought. We are more inclined to connect the orality aspect emerging in the folk stories and in the explanations of witchcraft with this recurrent anxiety about food rather than with aspects of weaning or early nursing. Cohen (7) has made this point forcibly in a cross-cultural analysis of attitudes towards food generally.

There is found, then, a persistent theme of aggression which runs through the fantasy or projective Tiv notions. Understanding of this theme is best made by reference to agnatic relationships, as there is a basic ambivalence in these relationships. Agnatic kinsmen are loved and respected, but at the same time there is a fear and suspicion directed towards them (2). It will be recalled that the *mbatsav* also provoke such an ambivalent attitude. However, the undoubted tension that exists between kin and which might be expected to lead to overt aggression between them appears to be displaced on to the *mbatsav*, who are kinfolk in their supernatural guise. It is never said overtly by a diviner that an agnate is responsible for a man's illness; this is only hinted. The blame is laid at the door of the *mbatsav*, who carry out their activities secretly. The mechanism has been well described by Bohannan (3, pp. 47-48):

> When illness strikes, fear immediately springs up. One distrusts those persons whom one considers to be one's closest kin. . . . Tiv are always drawn toward their agnates because their rights as citizens to land, to law, and to social position can be claimed only in the area of their agnatic lineage. At the same time, the jealousies, frictions, and hatreds that exist among kinsmen, especially those who are close neighbours, are expressed in mystical terms centering on the notion of *tsav*. The leaders of Tiv society are the elders of the lineage. Their wisdom is necessary; their protection of the community is necessary; their ceremonial "repairing" of the community is necessary. Yet their wisdom incorporates the knowledge of how to kill, and their protection must be withdrawn from at least one member of the community from time to time in order that a "sacrifice" may be had for "repairing" the community as a whole. How much homicide occurs in order to carry out these rites is, of course, unknown because it would not be reported. However, we can assume that it is extremely rare, for the *mbatsav* kill not by material but by psychic weapons.

The structure of *akombo* and the *mbatsav* may be regarded as a mixture of projection and displacement. Projection was originally defined by Freud (9) as a mechanism whereby the qualities of one's own personality were perceived as being in someone else rather than the self, particularly one's baser qualities. One meaning of displacement (12) is given to the situation in which a person is not allowed to love or hate a given individual, so that he finds a substitute to love or hate. Tiv are discouraged from overtly hating their kinsmen; fear, suspicion, and distrust are projected on to the *mbatsav,* which acts as a scapegoat. The rituals associated with *akombo* can be interpreted not only as a means of remedy for a person's illness, but a socially accepted method of clearing the blame of the illness—that is, of reducing the tension between kin. It has been seen from the field observations that aggression is first encouraged and then discouraged. A commonsense interpretation of this finding is that as the child grows older he becomes increasingly aware of the need to inhibit aggression unless it is safe, a point which Buss (4) makes of children in Western cultures. The prominence of aggression in fantasy, however, stimulates the suggestion that aggression is driven underground to re-appear in the projective material of folk tales and ideas of witches. Spiro (16) has made the important point that forbidden motives, like antagonism between kin, may be *inhibited* by social control of some kind, but the motives are not *extinguished.* It is at this point that the sociologically inclined structuralist and the psychological theorist are inclined to diverge. The former will regard the *akombo* and *mbatsav* systems as means of conflict resolution. The structuralist's attention is drawn to the *completion* of a cycle. By regarding these systems as ones analogical to individual defense mechanisms, the psychological theorist's at-

tention is drawn to the *perpetuation* of the cycle. Both theories, however, agree that such systems contribute to the maintenance of the entire social structure of which they are an integral part. In the Tiv case, an examination of childhood training tends to lend further content to a formal analysis in sociological terms.

E. Summary

The Tiv of Central Nigeria react to illness by attributing blame either to an offence on the part of the sick person or to kin in their guise of witchcraft. The illness ceremony is intended both to cure the sick person and to alleviate the guilt of the people involved, to restore the imbalance caused by supernatural forces. An analysis is made in this article of mechanisms in Tiv child training in terms of the categories familiar from socialization theory, which shows that aggressive behavior is first encouraged in Tiv childhood then sharply discouraged. A similar analysis of Tiv folk tales reveals that aggression is again a focal theme. Coupled with aggression is an emphasis on oral factors, which is interpreted by the writer as revealing a concern about scarcity of food rather than with matters of weaning and early nursing experiences, which the analysis shows to be relatively benevolent. The illness ceremonies are regarded from the point of view of displacing overt conflict between kin onto the realm of covert supernatural agencies, thereby releasing the tension between kin which might otherwise lead to disruption of the community.

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EXPRESSED VALUES OF BURMESE AND AMERICAN UNIVERSITY STUDENTS*[1]

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A. INTRODUCTION

There has been increasing interest in the social sciences in recent years in comparative or cross-cultural studies of various aspects of personality. With the growing awareness of the need to understand basic values and styles of life in developing countries in order to facilitate the various aid programs, this interest has acquired practical as well as theoretical import (4).

The study described here was conceived within this frame of reference. Data are presented which attempt to contrast groups from two cultures along a variety of value dimensions. The study was made possible by the prior availability of material from one of the cultures and by the feasibility of utilizing with another culture the technique through which that material was obtained. The study is exploratory in nature; so far as could be determined, no previous empirically based comparisons of this kind have been undertaken in these populations. Specific hypotheses have therefore not been formulated.

The first population studied consisted of undergraduate "majors" in business and commerce courses at the University of Rangoon in Burma. Material from these subjects was collected by Julian Wohl in late 1961, when he was on a teaching grant at the University of Rangoon. These data were compared with those obtained from a group of American students in the same general area of study at the University of Toledo in Ohio. Thus a comparison could be made between two groups of students, each from a different culture, but having in common the fact that they were working intensively in the same general area of study. With respect to the study of business and commerce in these cultures, it might be noted that while business in American society is a highly valued, familiar, conventionally accepted area in which to study, in Burmese society its formal study is a relative foreign superimposition upon

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a culture which traditionally has been little concerned with the techniques through which the production, distribution, and management of money is facilitated (6).

The technique used to elicit information about values is simple. The subjects are asked to tell briefly what they want from life. This technique has been used successfully in a prior study (7) in differentiating expressed values of two clinical subcultures—one, a group of middle-class and upper-middle-class men in business and industry; the other, a group of lower-middle- to lower-class outpatients in a VA clinic. A study of similar design to the present one (1) investigated the vocational aspirations of Japanese and American children. Subjects were asked to write a composition entitled "What I Want To Be When I Grow Up, and Why." The author called this a "topic-essay." Although the present study was developed without reference to Goodman's work, the two studies show great similarity in methods of data collection and categorization. The technique requires no elaborate interpretation in depth: the intent is primarily to study expressed values without necessarily accepting their "truth" or "reality."

B. Method

1. *Subjects*

Subjects were 84 students from the University of Rangoon, Rangoon, Burma, and an equal number of students from the University of Toledo, Toledo, Ohio. All subjects in both groups were business or "commerce" majors. Approximately half of the original Burmese sample consisted of women. It was necessary to discard most of their responses as part of an effort to equate the Burmese and the American subjects with respect to age and sex. The comparative rarity of females among American business students fixed the N at 76 men and eight women for each national group. The ages of subjects ranged from 17 to 25 years, with a mean of 21.1 years for the Americans and 21.4 for the Burmese.

2. *Materials*

Mimeographed question sheets were employed in gathering information about the values of subjects. Sheets for both groups contained spaces at the top for subjects to fill in information regarding age, sex, religion, major field of study, and last high school attended. Beneath this, the sheets presented to the Burmese subjects bore the following instructions:

> We want to learn about the interests, goals and values of university students. To do this we are asking you to respond in writing to one ques-

tion. The question is "what do you want from life?" Please try to answer this question briefly but specifically. For example, many people seek happiness but happiness is different for different people. It would be necessary for each one to describe what happiness means to him. Please write in English and as clearly as possible so that we can correctly understand what you are saying. Don't worry about your English ability. Write as simply as you can to express your views. Write no more than one page.

Please begin: WHAT DO YOU WANT FROM LIFE?

In the sheets presented to the American subjects, the instruction to write in English was removed. In addition, the wording was changed in order to render the instructions for the two groups more nearly equivalent in meaning and tone:

We want to learn about the interests, goals and values of university students. To do this we are asking you to respond in writing to the question "what do you want from life?" Please try to answer briefly but specifically. For example, many people seek happiness but happiness is different for different people. It would be necessary for each one to describe what happiness means to him. Write no more than one page.

Please begin: WHAT DO YOU WANT FROM LIFE?

3. *Procedure*

The American subjects were given the sheets in classroom groups of about 40. The question was read to each of the groups and then subjects were asked to spend about 20 minutes in responding. This procedure duplicated the method used in Burma, except that there larger classes were used. With the Burmese group, a Burmese administrator was used to avoid possible distortion caused by the presence of a foreigner.

On the basis of a pilot study and on the basis of general ideas about what areas might be useful to examine in these groups, a number of response categories were established. Responses of each subject were scored in one or more categories as he used them, but no subject was scored more than once in any category in order to avoid giving undue weight to a few people who wrote more. The following categories were used.

a. Denials. Any negative references.

b. Economic security. Any reference to economic security, stated directly or by implication, as in "freedom from want."

c. Economic success. Any positive reference to affluence beyond that degree necessary for an "average" standard of living: to specific possessions which imply such affluence.

d. Education. References are in three subcategories. (*a*) Knowledge—an

expressed value for learning *per se*. (*b*) Means—any reference to education as a means of attaining other goals, such as economic success or prestige. (*c*) Unspecified.

e. Family. Any reference to parents, siblings, or other relatives.

f. Health. Any reference to health.

g. Interpersonal receiving. Any reference to receiving from other persons such intangibles as love, respect, status, etc.

h. Marriage and children. Any reference to future home, spouse, children or benefits for children.

i. Pleasure. Any self-oriented reference to intangible pleasures, e.g. hobbies, vacations, "self-realization," etc.

j. Religion. Any explicit reference to religion or God.

k. Social concern. References are in two categories. (*a*) National—any reference connoting concern specifically for the welfare of the country. (*b*) General—any reference connoting concern for others or mankind in general.

l. Value prescriptions for others or criticisms of others.

m. Vocation. Any reference to a job or profession.

C. Results and Discussion

Table 1 shows the number of individuals from each national group who mentioned each category, and the per cent of total responses for the group, including repetitions, represented by each category. The percentage figure is intended to provide some indication of the relative importance of the category, as reflected by the proportion of total responses devoted to it by each group. The chi-square test was applied to determine whether differences between the raw scores for the two groups in each response category were statistically significant.

Statements falling into the category of Social Concern were the most frequent Burmese responses. Of the 41 Burmese respondents in this category, 16 individuals expressed concern specifically for the welfare or advancement of their nation. By contrast, the 12 American statements of social concern were all in the General subcategory, with no particular references to the United States.

It is also interesting to note the different flavor of American and Burmese responses. American Social Concern statements were in general brief, vague, and even trite references to "helping others down life's road." Moreover, the American statements were usually contained in the same sentence with an expressed value for Economic Success, Pleasure, or Interpersonal Receiving and appeared to be offered as a "balance" to compensate, as it were, for the

more genuine-sounding self-oriented statement. Of the four American Social Concern statements that were not of this nature, two were strongly religious and stated that helping others was a "duty."

The Burmese Social Concern statements were longer—some covered the full page—and their contents more specific, perhaps connoting greater familiarity and stronger concern with human misfortune. Examples of these were the many subjects who said they wished to build free hospitals and give money,

TABLE 1
NUMBER OF RESPONSES AND PER CENT OF TOTAL RESPONSES IN EACH CATEGORY

Category	American		Burmese		Significance level
	N	%	*N*	%	
Denials	21	7.1	23	8.0	NS
Economic Security	28	9.6	7	2.2	.001
Economic Success	29	9.9	18	6.7	NS
Education	21	5.8	37	12.1	.01
Family	1	0.3	3	1.0	NS
Health	8	2.2	9	2.9	NS
Interpersonal Receiving	22	7.4	23	9.6	NS
Marriage and Children	47	18.6	18	8.0	.001
Pleasure	47	18.6	41	17.9	NS
Religion	15	4.4	3	1.0	.01
Social Concern	12	3.8	44	20.5	.001
Value Prescriptions for Others or Criticism of Others	6	1.9	12	3.8	NS
Vocation	34	10.4	20	6.3	NS

jobs, or education to the poor. Burmese statements tended to lack the casual tone of the American statements, as in the following illustrations:

> What is the use of happiness for my own self if people around me are always drowned in oceans of sorrow?
> There must not be a single person who will cry for help.

The quantitative difference between American and Burmese statements in the Economic Success category was not great, but there was a considerable qualitative difference which is not reflected by the figures. Americans scored for Economic Success most usually stated reasonably attainable material goals such as "a $15,000 yearly income" or "two cars in the garage." Burmese Economic Success statements, although less frequent, tended to be far more ambitious and most often expressed a desire for great wealth or for money in general. Most of these students expressed some variant of the statement that "money makes happiness." No such explicit expression of this idea was encountered among the American subjects. Among the Burmese, mention of wealth was often related to a statement of social concern: the money would be used primarily for the welfare of others.

Statements in the category of Economic Security appeared in the American group with approximately the same frequency as those in Economic Success, making this one of the more important areas of concern. For the Burmese, concern with security was comparatively rare. When economic concern was expressed at all by the Burmese, it was most often a rather extravagant wish for wealth, as noted above. This difference may be due in part to the Burmese lack of sophistication in economic matters. Burma's lower standard of living would give fewer students familiarity with the possibilities and limitations of affluence, and the circumstances surrounding its acquisition. For the American student, economic achievement is more familiar and, to some degree, is expected. For a Burmese student, it may have more the nature of a fantasy; the quality of the statements seems to reflect this unrealistic aspect of economic success.

The Burmese mentioned education with significantly greater frequency than did the Americans. The numbers of individuals in the two groups whose statements were scored in the Knowledge and Unspecified subcategories were essentially the same. It was in the Means subcategory that the Burmese score greatly exceeded that of the Americans. The Burmese were quite unreserved in linking education to money. Typical was the statement of one individual:

> The pleasure depends upon wealth and the wealth depends upon education. So I want education in my life.

The Americans whose educational interests were described as a means of attaining other goals indicated social prestige or job opportunities as goals, and the economic motive, with the exception of one case, appeared only by implication.

Since the category of Pleasure subsumed a considerable range of responses, further analysis might be useful here also. With the exception of a few idiosyncratic responses, Pleasure references were to recreational and other commonly enjoyable activities, to positive feelings resulting from the development of talents and abilities and from having "accomplished something," and to contentment or freedom from anxieties.

The Burmese mentioned freedom from anxiety far more frequently than did the Americans. Particularly noticeable was their specific concern with having a "peaceful life," a relatively rare reference among the American subjects. The Americans' Pleasure statements were more often references to recreational and leisure activities. Statements of the American subjects also seemed to reflect greater concern with their worth and uniqueness as indi-

viduals. It was the Americans who wanted to "find" themselves—to "find direction"—who wanted the satisfaction of feeling that they were making the fullest use of their capabilities or were accomplishing something worthwhile.

Although not numerically different, American and Burmese responses in the category of Interpersonal Receiving were qualitatively dissimilar. The American statements were predominantly expressions of value for prestige and advancement of social status. Occurring with progressively less frequency were wishes to "get along well" with others, to enjoy "good" or "true" friendship, and to receive the love of family and friends. The Burmese stated most frequently the wish to receive love; other important concerns were to have a "good name" and to have many friends. The latter concern was the converse of the frequently expressed American interest in the quality rather than the quantity of friendships. The flavor of the Burmese statements can best be conveyed by the presentation of a few examples:

> I want the happiness of gaining more and more friends from my life. . . . If I know everyone in the world and everyone whom I know will be very kind to me, then I cannot express how happy I will be.

> I want people inviting me at every concerns, gatherings, etc.—all social functions.

> Man is a social animal—we don't want to stand alone.

This Burmese gregariousness and an extreme fear of social isolation were noted by Pye. He suggested that because the Burmese rely upon the use of shame in socialization, the individual develops few internalized standards of behavior. "His sense of identity is determined to an unusual degree by the way in which others regard him." (5, p. 183)

Sein Tu (6, p. 14) noted in the Burmese what he termed "Other-oriented self-esteem," and stated that "the effective sanctions operating . . . are external social pressures rather than internalized superego functions." Sein Tu also attributed this aspect of Burmese character structure to the use of socialization methods emphasizing shame, ridicule, and the opinions of others.

The American subjects mentioned Marriage and Children as part of their future aspirations with considerably greater frequency than the Burmese. Their statements in this area were given freely, and the specificity of their plans implied confidence and even certainty in the future. In some cases, American subjects charted the courses of their entire lives, including the number of children they expected, plans for the raising and education of these children, and their personal activities after retirement.

The smaller number of Burmese Marriage and Children statements may be due to an actual lack of interest in marriage or, perhaps, to other factors such as a culturally based inhibition of discussion in this area, or uncertainty about the future which could discourage long-range planning. Further investigation would be required for a valid designation of the cause of these results.

Similarly, in the Religion category the data supplied in Table 1 would seem to indicate a greater religious awareness among the American subjects, although this may be an erroneous assumption. Religion in Burma is all-pervasive and intimately intertwined with every phase of life so that an explicit reference would be redundant. In the United States, on the other hand, it has been noted that religion and the demands of society are compartmentalized so that their contradictions will not create conflict (2). The fact that religious conviction for the American tends to be isolated from other values, and would tend not to be implicit in the individual's activities or plans, might encourage its receiving separate expression. The dichotomization of Christian and practical ethics might be particularly marked in the case of Roman Catholics, whose religious precepts are far less compatible with capitalism than are those of the Protestants (3). In this connection, it was found that although Catholics comprised less than half the American subjects, they accounted for over twice as many Religion references as the other religions combined.

In general, the Burmese had less tendency than the Americans to state specifically intentions for the future, especially in the area of Marriage and Children, and had what seemed by Western standards a naive air about their statements. The latter was particularly noticeable where their comments took the form of wishes, bordering on fantasy, in contrast to the Americans' ordered and realistic plans, as in the area of economics, as well as in their ready references to education as a means of economic advancement.

Another difference was the comparative egocentrism of the American subjects. Their belief in the importance of the individual was reflected by responses in the Pleasure category which frequently referred to the discovery and fulfillment of personal potentials. Such responses were not encountered among the Burmese subjects, who tended to emphasize socially oriented goals. This tendency was evidenced by the far greater number of Burmese students whose remarks fell into the category of Social Concern, and by the Burmese Interpersonal Receiving statements, whose contents implied a great fear of social isolation.

D. Summary

This study compared American and Burmese business students on a number of value dimensions. Eighty-four students from the University of Rangoon and an equal number from the University of Toledo, Ohio, were asked to write short essays describing what they wanted from life. Their answers were scored in 13 response categories. The Americans used with significantly more frequency than the Burmese the categories of Economic Security, Marriage and Children, and Religion. The Burmese used the Education and Social Concern categories significantly more frequently than the Americans. In addition to the statistical comparison of scores, a discussion was presented of some of the qualitative aspects of the data.

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THE EFFECT OF COMPETITION ON THE SPEED AND ACCURACY OF SYLLOGISTIC REASONING*

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A. INTRODUCTION

Several studies pertain to syllogistic reasoning. Most relate the nature or content of the syllogism to the ease with which they are solved. A number of findings have been reported: The *S*'s conclusion will be biased when a syllogism is stated so as to suggest a positive or negative conclusion, the so-called "atmosphere effect" (3, 19, 20, 22); solving "neutral" syllogisms improves the subsequent solution of "emotionally provoking" syllogisms, while experience with "emotionally provoking" syllogisms disrupts subsequent performance on "neutral" syllogisms (11); syllogisms containing emotionally toned material are more difficult to solve (11, 15); biased syllogisms that contradict a subject's actual beliefs are harder to solve (8, 11); and items stated in familiar terms are usually easier than items stated in symbolic form (21).

To the writer's knowledge no one has previously observed different groups of *S*s solving the same syllogisms under different conditions; however, studies of *other* complex behaviors suggest that increases in stress or motivation usually disrupt performance on complex tasks. The well-known Yerkes-Dodson Law (2, 6, 23) states that the more complex a learning task, the lower the optimal level of motivation. Several studies report that increased motivation and stress disrupt attempts to solve problems and perform other complex tasks (1, 5, 9, 14, 16, 17). One investigator, however, reports *improvement* on a verbal-learning task as a function of stress (4). Such inconsistent results might easily arise as a result of subject differences; i.e., stress may improve the performance of some *S*s or groups of *S*s, but disrupt the performance of others. Indeed, Lazarus and Eriksen (10) report greater variability associated with a stress condition, but no mean difference. Such a difference in variability would, of course, naturally occur if *S*s respond differentially to stress. Fulkerson (7), furthermore, has been able to relate personality differences to differential reaction to stress.

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This study replicates several aspects of some of the studies cited above. Its two main variables are type of syllogism and competition *versus* neutral conditions. A consideration of previous work led to the following hypotheses:

1. Biased syllogisms, that contradict an *S*'s actual knowledge, will be most difficult; see, e.g., Janis and Frick (8).

2. The syllogisms stated in familiar terms will be easiest; see, e.g., Wilkins (21).

3. *S*s performing under noncompetitive conditions will do better; see, e.g., Mohsin (14).

4. Variability will be greater in the competition condition; see, e.g., Lazarus and Eriksen (10).

In fact, performance was worst on syllogisms phrased in symbolic terms and best on those stated in familiar terms. The biased and unfamiliar types were of intermediate difficulty. The competition variable also had an unexpected effect in that it resulted in better, rather than worse, performance. The variability was comparable in the experimental and control conditions.

B. Method

1. *Subjects*

The *S*s were 138 students enrolled in general psychology at the University of Hawaii.

2. *Syllogisms*

Syllogisms stated in familiar terms, unfamiliar terms, and in symbols were used, along with a fourth, biased type which used familiar terms but led logically to false conclusions or else failed to lead logically to true conclusions. For example, the following conclusions appeared: familiar—George's car is a sedan; unfamiliar—all lantipia is grinkolis; symbolic—all z's are x's; and biased—Pike's Peak is higher than Mt. Everest. Each *S* solved 10 syllogisms of each type. Different *S*s solved the four groups of 10 in different orders so that counterbalancing of order and type of syllogism was achieved. The syllogisms used were those that appear in the workbook prepared by Ruch and Warren (18).

3. *Procedure and Conditions*

The experiment was conducted as part of the weekly laboratory exercise. The lab instructors served as *E*s. In all, 15 laboratory groups of about equal size were involved.

E told one-half of the class that they would grade their own answers and

that no one else would know their scores. He told the other half that someone else would grade their papers and that their scores and relative standings would be known to all. (There is certainly no reason to suspect that the two halves of any class would differ in prior training in experimental logic or in abstract-reasoning ability, except by chance.) *E*'s instructions were interpreted as introducing a differential degree of competition, motivation, and stress in the two halves of each class. Both time and error scores were obtained.

C. Results

Separate mixed-design analyses of variance (13, p. 269) were performed on the time and error scores; see Tables 1 and 2. The analyses assess the effects of the different kinds of syllogisms and the control *versus*

TABLE 1
Analysis of Variance of Time Scores

Source of variance	*df*	*MS*	*F*
Competition	1	27.86	14.21**
Error between *S*s	136	1.96	
Syllogisms	3	22.15	44.30**
Syllogisms and treatments	3	.32	.64
Error within *S*s	408	.50	

** $p < .01$.

competition treatments. Tables 3 and 4 report the means and standard deviations of the various groups. In both tables the types of syllogism are arranged in the order of the magnitude of the mean scores. The order is not the same in both tables, indicating that one cannot necessarily predict error scores from time scores. Heterogeneity of variance is evident in the time scores (see Table 3); however, some evidence indicates such heterogeneity does not markedly affect the validity of analysis of variance (12, pp. 139-144). Also the huge *F*'s obtained could hardly be mere artifact.

The competition condition exerts a significant effect on both time and error scores. Competition *S*s take more time to solve their problems but, contrary to expectation, make *fewer* errors. The effect of competition on time and error scores is very apparent from a comparison of rows two and three in Tables 3 and 4. The effect of both time and errors is completely consistent. In the case of all four kinds of syllogisms, *S*s made fewer errors, but took more time, in the competition condition. Apparently a mild increase in stress improved the intellectual functioning of this group. It is, of course, impossible to know the real subjective effect of the instructions; it is only possible

to report what they were and what effect they apparently had. Certainly the instructions seemed designed to produce more competition in one group, and competition is commonly assumed to increase motivation and stress.

The type of syllogism also proves to be important. Under both conditions

TABLE 2
ANALYSIS OF VARIANCE OF ERROR SCORES

Source of variance	*df*	*MS*	*F*
Competition	1	35.00	5.62*
Error between *Ss*	136	6.23	
Syllogisms	3	112.00	63.27*
Syllogisms and treatments	3	2.33	1.32
Error within *Ss*	408	1.77	

* $p < .05$.
** $p < .01$.

TABLE 3
MEAN TIMES TO SOLVE DIFFERENT TYPES OF SYLLOGISMS UNDER COMPETITIVE AND CONTROL CONDITIONS

Familiar		Biased		Symbolic		Unfamiliar		Total	
$\overline{X}$	σ^2	$\overline{X}$	σ^2	$\overline{X}$	σ^2	$\overline{X}$	σ^2	$\overline{X}$	σ^2
				Control group					
2.18	.47	2.29	.52	2.62	.64	2.94	.81	9.99	6.03
				Competition group					
2.48	.59	2.68	.86	3.17	1.81	3.45	1.34	11.79	9.89
				Total					
2.30	.53	2.48	.69	2.89	1.22	3.19	1.08		

TABLE 4
MEAN NUMBER CORRECT ON DIFFERENT TYPES OF SYLLOGISMS UNDER COMPETITIVE AND CONTROL CONDITIONS

Familiar		Unfamiliar		Biased		Symbolic		Total	
$\overline{X}$	σ^2	$\overline{X}$	σ^2	$\overline{X}$	σ^2	$\overline{X}$	σ^2	$\overline{X}$	σ^2
				Competition group					
7.8	3.6	7.1	2.8	6.5	3.2	5.4	2.2	26.8	24.7
				Control group					
7.0	3.6	6.6	3.3	5.9	3.9	5.2	2.8	24.8	25.1
				Total					
7.4	3.6	6.8	3.0	6.2	3.6	5.3	2.5		

the *Ss* made the fewest errors on the familiar form, followed by the unfamiliar, biased, and symbolic forms. Separate *t* tests show the gap between each group to be significant at beyond the .01 level. The ease of the familiar form relative to the biased and symbolic forms supports the conclusions of

Wilkins (21), Janis and Frick (8), and Lefford (11). This writer is not familiar with other studies that compare biased and symbolic forms with each other. In this case the biased (false) conclusions apparently did not increase difficulty as much as did the symbolic statement. The time scores also reveal a significant effect, but, as noted above, the data demonstrate no clear relation between the kind of syllogism that takes the longest and the kind that is solved most accurately.

D. Summary and Conclusions

The form in which syllogisms were stated and the competitiveness of the conditions under which they were solved were related to time and error scores. Syllogisms stated in familiar terms, unfamiliar terms, and symbols were used along with a biased type that led logically to factually false conclusions or else failed to lead logically to true conclusions. *E* introduced competition by telling half of each group that their scores would be revealed. He assured the other half that no one else would know their scores. Under both conditions, *S*s made the fewest errors on the familiar form, followed by the unfamiliar, biased, and symbolic forms. The competition group made the fewest errors.

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TEMPORAL OPINION ORIENTATION: AN ADAPTIVE PROCESS*

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A. INTRODUCTION

The current liberal and conservative renaissances, manifest over the nation, stimulate the psychologist to study political and economic predispositions in the context of personality needs, traits, and adjustment patterns. Acceleration in the search for pervasive syndromes in adaptive processes involving beliefs and attitudes during the past 15 years has discovered the "authoritarian personality" (1), the "extrapunitive-intropunitive" continuum (9), persuasibility as a personal variable (5), the dogmatic mind (8), and others. Adler long ago suggested a relationship between established and stable cognitive patterns and adjustment processes in his concept "style of life." Smith *et al.* (10, p. 34) narrowed the scope when they wrote, ". . . look far enough into the origins of any opinion and one will find not just an opinion but a sample of how the holder of that opinion copes with his world."

Investigators have hesitated to operationalize the concepts "liberal" and "conservative" because of the great semantic variability within each term and because of subjectiveness in the choice and scoring of items in opinion-measuring instruments. The Eyesenck (2) study, which yielded a radical-conservative multivariate analysis factor, is a notable exception to the subjective approach.

This paper describes a study which attempts to put the liberal-conservative continuum on an empirically sound basis. It relies on the dictionary, which defines a liberal as one receptive to change and a conservative as one not receptive to change. In the study described below, receptivity to change is determined by a temporal variable whose principal anchorage is the present, the *status quo* condition. Measuring items must represent trends of the past few decades, clearly evident and congruous with reality.

The three temporal components of a trend—how conditions used to be, how they are now, and how they are likely to be if the trend continues in its present course—form the basis of temporal opinion orientation. Individuals favoring conditions as they exist are labelled *status quo oriented* (conservatives),

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those favoring conditions as they used to be are *backward oriented* (reactionaries), and those favoring conditions as they are likely to become if present trends continue are called *forward oriented*. Other forms of time orientations have been described in anthropological studies, social class correlates (6), and in cognition (8).

B. Hypotheses

1. *Hypothesis I*

There is a tendency for an individual to be forward, backward, or *status quo* oriented in his entire attitudinal structure.

2. *Hypothesis II*

Systematic differences exist among the three orientations in perception, motivation, values, etc., indicative of different general adaptive processes. Correlates investigated in the study include a general outlook of optimism-satisfaction, the Rokeach "dogmaticism"[1] scale, and certain social values. Predictions here must remain nebulous because of the explorary nature of the study. Each variable and relationship is discussed below.

C. Description and Results of the Study

The study was conducted at the Boston University Communications Research Center; 234 juniors and seniors acted as respondents to a questionnaire, which included all variables. One section of the questionnaire sought to classify the respondents into the three temporal orientations; another part attempted to discover correlates and difference among the three.

Of 13 items describing certain trends, 11 were chosen on the basis of internal consistency and variability of responses. The 11 trends were the federal government and expanding social benefits; increased functions of the public schools; mass education at the college level; increased science and technology; increased reliance by parents on psychology in rearing children; government control over business; the power and influence of labor; the decline of the double standard of morality—one standard for men, another for women; specialization of occupations; content of a frank nature, even if sordid, in literature and mass-media entertainment; and the trend toward world government.

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[1] The author is indebted to Dr. Milton Rokeach, Michigan State University, and to Basic Books, Inc., for permission to use the dogmaticism scale described in *The Open and Closed Mind* (8).

A sample item is given below for illustration.

The federal government and social benefits.
——The government should expand social benefits like medical aid for the aged, etc.
——The government should reduce social benefits.
——It is best the way it is—no change is warranted.
How strongly do you feel about this issue?
——very strongly.
——fairly strongly.
——just so-so.
——don't really care much.

An attempt was made to include trends in several areas in order to test Hypothesis I.

An index was derived from the combined 11 items in Likert fashion. An item with a *status quo* orientation was scored five points. Forward orientation was scored six through nine, depending on intensity of opinion—the greater the intensity, the higher the score. Backward orientation was scored one through four, with a score of one indicating the most intense opinion. High scores reflected forward orientation; low scores, backward orientation; and middle scores, *status quo* orientation. Index scores ranged from 26 to 91, with a mean of 59.87—nearly five points above the theoretical mean—and a standard deviation of 8.77.

Tetrachoric correlations relating each item to the total index provided a measure of internal consistency and also tested Hypothesis I—individuals tend to hold opinions reflecting only one temporal orientation. Table 1 shows all the correlations to be positive, as were those of the two items dropped, whose coefficients were negligible. These results support Hypothesis I.

Hypothesis II states that differences exist among the three temporal orientations in cognitions, indicative of variations in adaptive processes. The three orientations were determined by trichotomizing the sample by index scores. Each of these three groups was then related to meaningful variables.

One relationship—that of political party affiliation—was made as a validity check. Republican Party philosophy has traditionally favored former conditions; the Democratic Party has been prone to change. The expected relationship between forward orientation and Democratic affiliation and backward orientation and Republican membership produced a chi square of 17.92, significant beyond the .001 level for a three-by-two table, *status quo* orientation reflecting a more equal balance in party preference.

In the attempt to discover differences in adjustment profiles among the three temporal cognitive orientations, measures of optimism-pessimism and

satisfaction with the mass media in their handling of issues associated with the 11 trends comprised the factor *general outlook*. The former was gauged by combining reactions to two scaled items: (*a*) "Barring a war, life during the next 50 years will create greater personal happiness than ever before in history"; and (*b*) "It seems likely that there will be no major war in the remainder of the 20th century." Table 2 shows the relationship to be continuous, the forward oriented being the most optimistic, followed by the *status quo* oriented and the backward oriented in that order. The null hypothesis at the .05 level can be rejected.

TABLE 1
TETRACHORIC *r* BETWEEN ITEMS AND TOTAL INDEX

Influence of psychology in child rearing	.62
The federal government and social benefits	.51
Trend toward specialization toward occupations	.51
Mass education on the college level	.48
Increased science and technology	.48
Trend toward world government	.47
Increased functions of public schools	.46
The power and influence of labor	.43
Government control over business	.41
Double standard of morality	.33
Greater candidness in literature and mass-media entertainment	.32

Appraisal of mass-media performance, both in their reportorial and entertainment presentation of the 11 issue-trends, was ascertained by the respondents' satisfaction with the media on each of the issues on a six-point scale ranging from "excellent" to "very poor." Responses to each issue evaluation were dichotomized and related to the three temporal orientations. Table 3 reveals a surprisingly high correlation between forward orientation and satisfaction with the mass media, notwithstanding the generally accepted position that the press is conservative and *status quo* oriented with strong pro-Republican and pro-management biases. The forward oriented led the other two orientations in the percentage of respondents falling in the upper half of

TABLE 2
RELATION BETWEEN TEMPORAL ORIENTATION AND OPTIMISM-PESSIMISM

Attitude	Orientation		
	Forward	Status quo	Backward
Optimistic	33 (52%)	42 (41.5%)	22 (31%)
Pessimistic	30 (48%)	59 (58.5%)	48 (69%)

Note: $X^2 = 6.04$, $p < .05$.

the dichotomized satisfaction-with-the-media index in seven of the 11 issues. On the other hand, the backward oriented had the smallest percentage of their number falling in the upper half of this index in 10 of the 11 issues, an occurrence which could happen by chance less than one time in 20,000.

A demographic variable was found to relate to temporal orientation—place of parents' birth. One or both parents born outside the United States correlated significantly with *status quo* orientation, suggesting that acculturation proceeds from existing conditions.

TABLE 3
TEMPORAL ORIENTATION AND SATISFACTION WITH MASS-MEDIA PERFORMANCE

Rank order based on satisfaction	Temporal orientation		
	Forward	Status quo	Backward
Highest	7	4	0
Middle	3	7	1
Lowest	1	0	10

The Rokeach "dogmatism" scale was included in the questionnaire to ascertain differences among the temporal opinion orientations on this variable. The *status quo* oriented tended to be the least dogmatic, but the difference did not prove significant.

A phenomenon accorded much importance during the past two decades has been culturally determined traits of the individual. It seemed relevant to relate some leading concepts in this area to temporal orientation. Single *ad hoc* items were included in the questionnaire representing three influential concepts. Erick Fromm's "market orientation" (3) was gauged by the item: "The traits and attributes which help one get ahead are the most important." Fromm described the present-day American as being "market oriented" in the traits he seeks to develop. David Riesman's "other directedness" (7), another description of American society today, was measured by the item: "The most rewarding aspects of personal success come with social recognition and approval." A third description of the American today, empirically derived in an international study of values conducted and reported by Gillespie and Allport (4), is that he is more interested in private goals and less interested in group causes than is any other national-group individual. An item measuring this phenomenon—"One should devote his major efforts toward achieving goals of personal ambition rather than goals for social betterment"—was included.

Significant correlations were found among all three of these variables—"other directedness" correlated with "market orientation," and each of these

correlated significantly with value placed on personal goals. "Closed-mindedness," as measured by the Rokeach scale, correlated significantly with all three, but temporal opinion orientations reflected no pattern of relationships.

A definite pattern of interactive effect between dogmatism and temporal orientation was discovered in opinions held toward "other directedness," "market orientation," and personal goals. The difference between the "closed-minded" and "open-minded," as measured by the Rokeach scale, was in all three cases greatest with the *status quo* oriented group, followed by the backward-oriented, and tended to disappear in the forward-oriented group. Most of the differences were significant. The similarity of response pattern was so striking that it begs theoretical explanation. The interactive effect did not hold for the variables of optimism and satisfaction with the mass media.

D. Discussion

Results of the study reported above contribute evidence that a temporal element may be a relatively enduring factor in the individual's ideology and attitude network. This propensity seems to transcend content area.

The attempt to isolate each temporal group as a cue to distinct adjustment patterns produced mixed results. The most salient correlates were optimism-pessimism and satisfaction with the mass media. Generalizing these reactions describes a condition of contentment and hope for the forward-oriented individual and a less happy state for the backward-oriented person. Direction of causality cannot be inferred from the results. The findings point to the necessity of further investigation, not only to corroborate the results, but to test the relationship between forward opinion orientation and a healthy adjustment state as suggested here.

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CREATIVITY IN THE CRIMINAL*

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A. INTRODUCTION

An examination of the literature in the fields of psychiatry and psychology will show that there has been a widespread renascence of interest in recent years in the subject of *creativity*. The ramifications of this topic have been pursued in a variety of ways. Eclectic approaches to the subject, emphasizing its expression in a multiplicity of aspects, have appeared in volumes edited by Anderson (1), Andrews (2), and Smith (15). A rich discussion of the creative process in an extremely wide variety of contexts has been furnished by Osborn (13). McKellar (12) has done a cogent, psychological analysis of imagination and thinking, as expressions of the creative impulse, drawing upon numerous psychiatric and psychological sources as well as upon the results of his own experimental researches. Kubie (11) has done a penetrating, technical study of the universality of both creative and neurotic processes and of the relations between them. Ghiselin (7) has preferred to deal with this topic by going directly to creative individuals who have provided an account of the manner in which they did their work, in order to offset speculative accounts of creativity at second hand. Most of the material on the creative child as an educational problem has been brought together by Torrance (17), who has stressed the differences between creative and gifted children, on the one hand, and high-*IQ* children, on the other. For anyone, however, wishing to range far and wide over the whole subject of creativity, Stein and Heinze (16) have furnished a complete volume containing *summaries* of selected literature from psychiatry and psychology, dealing with this and related topics. Their work constitutes without question a sort of definitive bible on this subject. I have had no occasion to familiarize myself with most of the available literature in this field, a task which would, in any case, be beyond the abilities of any one man. If, however, the handful of volumes to which I have just referred is representative, we find one glaring omission. Nowhere in this plethora of literature does there seem to be a treatment of creativity among criminals. Because common professional and public stereotypes generally do not assume that the

* Received in the Editorial Office on May 8, 1963. Copyright, 1965, by The Journal Press.

creative function exists among those whom we have labeled "criminal," a brief paper dealing with some case histories along these lines would be in order. In addition, for criminals who are definitely creative, I suspect that the task of rehabilitation will not only prove to be easier but will have to be approached quite differently from the manner in which we deal with the common criminal.

Undoubtedly a very scholarly volume is about due on a subject of this sort. Certainly the subject has to be lifted above the plane Gaddis (6) has made familiar via "the birdman of Alcatraz." Robert Stroud—with his interest in ornithology—and a few other highly popularized criminals with unusual creative propensities have been treated as though such criminal types are extremely rare. Their frequency in the criminal population, however, remains to be established statistically with all the paraphernalia of the interview and field survey which would have to accompany it. In the meantime the case history would be more to the point and a volume such as I have suggested would probably be the first appropriate breakthrough. Such a volume—infinitely more ambitious than the present modest paper—gathering case histories on creative criminals presently serving time would be of prime service by analyzing and interpreting such material for the promise it holds. Such material would undoubtedly give rise to new and fresh viewpoints concerning this relatively small bloc of criminals, viewpoints which would probably be concerned with psychodiagnostics, rehabilitation, and punishment. I myself would find the opportunity to work along such lines a very satisfying professional task. Meanwhile, however, I can offer only the present paper embodying the fruits of my own limited experience with creative criminals. Having worked as a penal psychologist in a large and well-known penitentiary where I had occasion to get to know something about the past of a large number of its inmates, I had the good fortune to have interviewed *five convicts* whose creative propensities stuck out conspicuously. Having kept some notes on these, I am in a position to furnish their case histories, which I wish to offer in evidence here. No doubt there were other convicts with creative abilities of one sort or another, who were in this institution at the same time. I did not happen to meet them. I mention this, however, so as to offset any impression that these were the only cases of convicts with creative ability of some kind, in this large prison community. Because, however, I achieved some familiarity with these five convicts, I feel justified in presenting their records of creativity —records which should be of service not only for the annals of criminology but also for those of psychiatry and psychology. Without any more ado then I should like to plunge into my subject immediately.

B. Profiles of Some Criminals with Creative Abilities

1. *Case 1. The Negro Musician*

A was a young Negro about 25, tall, slim, and slow spoken. He had had no schooling beyond the elementary level. Prior to incarceration he had made his living playing with an all-Negro jazz band. His arrest was the result of theft. He happened to be passing a large music shop in a big city with which he was relatively unfamiliar. He noticed in the window of this shop, which was closed at the time, a very rare type of guitar which was on display for $750. Its unusual features caught his fancy. He developed on the spot an uncontrollable longing for this unusual instrument and, acting on impulse, smashed the display window with his right fist (which he had carefully swathed in a heavy muffler), made a large enough hole for entry, snatched the instrument, pulled it out, and ran. Unfortunately for him he aroused the suspicions of two policemen in a patrol car two to three blocks away. He was picked up and under questioning he broke down, confessed, and received a five-year term. At the time of my contact with him he had served two and one-half years of this under good behavior and it appeared that he might be released at the end of three years.

A's creativity showed up in several ways. He regularly published short articles in religious periodicals and in popular periodicals devoted to psychology. He also published short stories in second-rate science-fiction magazines and some remarkably good poetry which had been making the top-grade magazines. All his earnings naturally were being held for him until his release. In addition he composed jazz songs, words and all, which he would sing for other inmates, on request. These were so admired by both inmates and penitentiary staff that he was constantly encouraged to try to get them published. His writing interests appeared to center around psychology and religion, but whether this was the result of ruminating over his fate or whether they existed prior to and independently of it could not be ascertained. His reading was desultory but serious and, like his writing interests, appeared to be concerned chiefly with psychology and religion. His writing style was highly individualistic, managing to sustain interest with ease, but both his writing and speaking vocabulary were relatively very simple. This, however, was not due to a natural vocabulary limitation, for a probing conversation aimed at trying to ascertain how much of the more difficult vocabulary of the books he read was familiar to him revealed an almost perfect batting average. His simplicity of style was therefore clearly a matter of deliberate choice.

When he was asked what he intended to do after release, his answers were surprising. He intended to resume his vocation as a musician and discontinue his writing, which he looked upon only as a means of building up a sizable savings cushion for re-entry into extramural life. He refused to be persuaded of the advantages which lay in returning to school once he was released, even though his family were willing to assume the financial burdens involved. *IQ* test scores which were available for A revealed a variation between 116 and 123, so that he was clearly of perhaps more than college educability. He lacked all sense of planning and exhibited poor judgment with respect to where his best interests lay. When he was asked just what satisfactions prompted him to wish to return to his old career of jazz-band musician, his only answer was that this would give him a chance to resume contact with his old friends and that it was "easier to make the dames this way." He did intend, however, to try to get well-known orchestra leaders to plug some of the songs he had written in jail but—and this is interesting—he did not intend to do any more of them after his release. He confessed to the fact that he smoked an occasional reefer but he was free of the needle and several other common vices which are not infrequently associated with the tensions of his profession. Also, curiously enough, he had no intense interest in jazz—neither that of the highbrow nor that of the lowbrow. Playing jazz was simply another way of earning a living which would make no further drain upon his time in terms of more preparation for improving his economic returns and social status.

The psychodynamics of this case, to judge from the sketchy prison dossier and A's even more guarded conversations, suggest an almost completely id-dominated personality. The absence of planning for his personal life; the concern with money, comfort, and situations which involved little or no strain and effort for him; his relative apathy towards his own gifts and his desire to coast on them for financial returns—all these suggest a motivational pattern dominated almost completely by the pleasure principle. His interest in psychology appears to indicate, I believe, that he may have been trying to understand himself in terms of criticism which he received from more ambitious inmates. His interest in religion was associated, perhaps, with a sense of guilt issuing from his theft and conviction, together with its effect on his family and his own efforts to find an easy and traditional form of guidance that would help to assuage that sense of guilt. His writing science fiction *was not* associated with doing any reading in science. His entire knowledge of things scientific came solely from reading popular magazines and newspapers, but this indicates, I would judge, the gift of a highly creative imagination which made the most of what slim and superficial knowledge he possessed.

The creativity of this individual held little promise for his future. If guidance and encouragement had been furnished early, perhaps A would have reached a higher and richer peak of development than he actually did. If this had occurred, society too would have been a beneficiary. It may also be the case that his low threshold of motivation—low in relation to a fuller ambition which might reasonably have been expected to be associated with his gifts—was completely a matter of constitutional genesis. If an extended series of counseling and psychotherapy sessions were socially available without cost for a person of this sort and if he could be persuaded to undertake them, no doubt his creative gifts could have been rechanneled in a more fruitful direction. However, the only follow-up he could expect after release would be that of the parole board rather than that of a therapist or counselor. The hope of salvageability is not too promising under such circumstances.

2. *Case 2. The Handsome Forger*

B was a young man in his early thirties. He was tall, handsome, soft-spoken, and well-read. Prior to incarceration he had been active in some minor financial swindles and had been on a forging spree which had led him through several states. He had met his Waterloo in a small community where he had passed himself off as an attorney who was not practising because he was interested only in business at the time. He had succeeded in achieving entry into local upper-class circles and had placed himself on a friendly footing with local, political bigwigs. For nine months he had lived in this community without doing anything at all, which helped to create the impression that he was a man of means. He had succeeded in this by drawing upon a nest egg accumulated from previously forged checks which he had cashed elsewhere. At the end of nine months he had gotten himself introduced to a rich and captivating young widow without children. This unfortunate lady fell in love with him and became his mistress on the promise of marriage and the announcement of an engagement. He then began borrowing sums from her and her friends for a business venture. When he had accumulated about $30,000, he fled the scene. After he had been missing for about a week, the suspicions of some of the widow's friends were aroused. The police were called in, he was apprehended in a city in the same state, about 250 miles away, and most of the money was recovered. He was convicted both for absconding with other people's funds and some forged checks which he had begun to pass off once more, after he had fled the small community.

B's parents were divorced. His mother, who visited him in jail, was charming and youthful in appearance and a woman of independent means who lived

by financial investments of various sorts. B's creativity expressed itself in some rather unusual ways. B himself was the most widely read human being that the present writer has ever met. On every visit, his mother would leave him about a dozen serious volumes, an arrangement prison officials had agreed to, provided all the volumes were subject to routine inspection. These were works in almost every imaginable field. B would read these and write extended critiques of each, although it was never clear what he intended to do with these. I had the privilege of reading several of these critiques, and they were not only examples of first-rate scholarship but they brought together information from cognate fields so as to make the critique richer and more meaningful. In addition many of these critiques contained some highly original ideas and at least one of these should have been published in a scholarly periodical such as the *Journal of the History of Ideas*. B refused to submit anything for publication, but this was not due to any lack of confidence in his work. It was due instead to his strong conviction that these critiques would not receive the consideration they deserved because he had no academic by-line. B had quit college, incidentally, after two years. It was hard to define the area of B's interests. These interests seemed to be hybrid to a combination of the social sciences and literary and artistic criticism. After his term was up he intended to return to school and pursue studies in both these directions.

B showed two other unusual gifts. One was a flair for modern languages. He had apparently mastered the grammar and acquired a reading facility in two of these for each of the three years he had served by the time I made his acquaintance. He was able to go through a standard grammar in about a month and then would start reading short stories and articles in each language from material furnished by his mother or which he was lucky enough to locate on occasion in the prison library. In addition to these linguistic interests he was fascinated by the subject of hieroglyphics and was slowly but surely acquiring some expertness in deciphering Egyptian and Mayan hieroglyphics. In some way he connected this hobby up with his interest in history. He was particularly engrossed in such material as *The Loom of Language* by Bodmer and Hogben (3), Karlgren's (10) "Sound And Symbol In Chinese," and such classic standbys as the work of Jespersen (9). A standard type of amusement he furnished for other inmates was the ability to reproduce their handwriting on the spot, once shown a specimen, and the fidelity of these reproductions made one wonder how he could have had any difficulty as a forger at all. He had also picked up an interest in handwriting analysis, as a derivative of his previous shady vocation, and he was very well acquainted with the work of Saudek (14) and others. He spent hours relaying his ideas to me on what he

thought it would take to make a science out of graphology. There was, however, more enthusiasm and naiveté than originality in his proposals because of his complete ignorance of research design and methodology.

B gave the impression of being weak but not vain. He was popular but had no leadership qualities at all. His drive was purely intellectual and his curiosity insatiable. He appeared to have some conflict between acting on his mother's well-intentioned advice concerning his future and his desire to plan for it himself, choosing a goal in which he felt he could do outstanding work. He had been relatively neglected as an only child by his parents, who pursued a constant round of social activities. By the time B's parents had divorced, he was in his late teens and was neglected once again as the aftermath of his mother's period of readjustment. B was not too communicative concerning his emotional needs, his sexual interests, and his frustrations; but it was not too difficult to see his forgeries and swindles as a way of striking back at his parents for their long neglect—treating his various victims as extended symbols of the solid citizens his parents were supposed to be.

Those who were interested in B while he was serving out his term had fairly well convinced him that the interpretation above was probably a correct explanation of his past behavior. The father had become so involved in a second marriage that his interest in the boy had dwindled. The mother's interest was parental only to the extent that she appeared on the scene to bail him out if he got into any trouble. She seemed to operate on the principle that cure was better than prevention. B had developed an increasing understanding of the conflicts underlying his parents' differences while he was in prison. One result of this was that he started thinking constructively about his own future rather than negatively about evening the score with them, particularly his mother. It was not too difficult to convince him that he was cut out for a life of scholarship. As I have already remarked, B intended to return to school with such an objective in mind, a goal which his mother gladly intended to support financially since, once again, it created the impression of parental solicitude without the emotional substance of it. In any event, from B's point of view the life of a successful scholar would, at the same time, be a *positive* way of making both parents feel guilty about their past neglect. Unconsciously he probably felt that this could be achieved while providing the opportunity of being distinctly useful to society.

The one gamble society would be taking over B's future was the matter of possible recidivism. Would his intellectual and scholarly interests, once he was released, be stronger than the life of ease formerly satisfied by forgery and swindling? I never had the opportunity of finding out what occurred following

B's release because I was gone well before that event took place. Even assuming, however, that he would backslide, responsibility would have to be shared. In addition to holding B responsible, should this happen, responsibility must also be placed fairly and squarely on the past negligence of both parents and on society's disinterest in providing an institutional resource for checking on how well parents fulfill their obligations beyond those of physical care. I feel certain, however, that therapy following release, and the guidance that could come from having appropriate company and a stimulating peer group, could be counted upon to help B stick to his resolves and fulfill himself without too much difficulty. An academic existence would, without doubt, provide this. If B failed to go straight, the loss would certainly be more society's than his own.

3. *Case 3. The Mathematics Wizard*

C, age 36, had been a technical specialist at a well-known air force base. His specialty was mathematics, and his wizardry at this had been used for both theoretical work and practical applications in the activities carried out at this base. However, when personnel ordered a routine check on the backgrounds of professional specialists there, it was discovered that C had falsified his background and had never been graduated from college. He was released and somehow or other (probably by the same route of falsifying personnel data) had obtained a position as a junior executive with a well-known company. Before a year and a half had elapsed, C was caught embezzling funds, was indicted, and convicted. I made contact with C within two weeks of his entering prison.

C was vain, aggressive, and a chronic but well-composed liar. He could look you straight in the eye and lie about a matter on which the truth was available from his case history which lay directly before the interviewer. He looked more like a vaudeville hoofer than the gifted person he turned out to be. He spoke fluently, was completely unguarded, and was happy to tell of his exploits—both real and fictitious. His gifts, however, were beyond question. In the first place, he was a very creative mathematician, an interest which he had pursued for years. He had been publishing intermittently in mathematics journals from his high-school days on. He referred me to some of his publications, and his claims in this respect were valid. I asked some mathematicians to evaluate two of his papers that I was able to lay my hands on and was told they were of first-rate quality with no amateurishness about them whatsoever. In addition C showed me correspondence that he had had from time to time with mathematicians, regarding problems which he had felt were neglected but deserved to be tackled, and from the correspondence it was clear that his work was well

thought of and respected. He was no Ramanujan,[1] of course, and had no Hardy interested in him, but all commentary and evaluation I was able to receive indicated that his gifts were decidedly above average.

A second of C's gifts lay in the fact that he had gotten interested in scientific management, first from his work at the air force base and later from his work in industry. He had become interested in operations research in the early days of that interdisciplinary field, in engineering economics and in industrial psychology. C had worked out on paper, with clear accompanying notes, the solution to a number of significant types of management problems in which he had gotten interested. With C's permission I had some of these photostated and asked some people in the management area to evaluate them. Here too, C's ideas were described as highly original and significant, and one judge refused to believe that the work he had been shown had been done by a common criminal who had never finished college. This judge insisted that the work had probably been plagiarized from some relatively obscure European journal in the expectation that, in this way, the dishonesty would not be uncovered. Furthermore this judge assumed that modifications of terminology and a mathematical notation had probably been used to disguise the plagiarism even more effectively. At this date, of course, no one will ever know the truth. Two items of special interest along these intellectually hybrid lines to which C had devoted some thought should be mentioned here. One of these was concerned with the measurement of the changing productivity of clerical services in industry.[2] The other was an actuarial problem concerned with the value of a man from an economic point of view. The latter item was saturated with wholly original ideas which, I was told, compared favorably with some of those in the work of Dublin (4), although C had never heard of this work at all—or so he claimed.

Outside of these two lines, mathematics and scientific management, C appeared to have no disciplinary interests whatsoever, except for games, problems, puzzles, and chess—all of which could be regarded as clearly derivative from his interest in mathematics. He lacked social perception, lacked any sympathy or empathy for the plight of other inmates, had no interest in them, and could be properly described as all intellectuality and efficiency with little real dis-

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[1] One of the most original mathematicians of modern times. Ramanujan, an Indian clerk with no formal academic education, was befriended by the great British mathematician Hardy, who obtained a scholarship for him at Cambridge.

[2] The problem in which C was interested was really related to the changing productivity of white-collar services as a result of automation. But this work had been done by C in 1954. Thus it preceded similar work along such lines which was described in a volume such as *Man and Automation.* (Report of the proceedings of a conference sponsored by the Society for Applied Anthropology at Yale University, December 27-28, 1955. The Technology Project, Yale University.)

cernible feeling for his fellow man. Culturally, using this term in its humanistic sense, C was the most ignorant man I have ever met, among those whom we can legitimately speak of as the bright and gifted. He read nothing outside of mathematics and management, had the most debased taste in music and the cinema, and seemed socially to be concerned only with power and prestige. He would talk about anything except his relatives. He had been brought up in an orphanage which had apparently provided him only with unhappy memories. He seemingly had no interest in women. He was vague about two sets of foster parents and his past relationships to them. He possessed natural uncles, aunts, and cousins whom he had not seen for years. C had been unable to continue college because of financial pressures and because he had been bored. Revealingly enough, when asked whether he had enjoyed his mathematics courses in his few semesters at college, he remarked that he had found the instructors ignorant and boring and that he had picked up everything he knew by himself. Through an illegitimate extension of these early unhappy and fruitless academic experiences, he had decided that there were few professors from whom he could learn anything at all. For this reason he did not ever intend to return to school. He could not see the contradiction between this opinion and the fact that he had learned something from the mathematics books he had read that were written by professors, as well as from the correspondence he had had with some of these men.

I think it could be argued that C was almost completely a victim of lack of guidance, lack of affection, and the absence of ties to anyone and anything. He had also been psychologically hurt over the failure of grown-ups to take an interest in him when young and to encourage him to do something which would develop his interests along professional lines. In addition, as might be expected, C had little trust in anyone, where his own future was concerned. This distrust seemed to have been reinforced by his traumatic experience at the air force base and by his contempt for the bad management which he claimed was characteristic of the executives with whom he had brushed shoulders in industry. With these attitudes it was quite obvious that if a scholarship were established for C, which took care of him economically, he would make himself obnoxious to his mentors and eventually lose it. On the other hand, if a position were found for him in industry which was commensurate with his talents, his aggressive contempt towards associates would soon result in his being shouldered out of any worthwhile work and possible advancement. C could probably never have been persuaded to undergo therapy, although this was a service which he sorely needed. A situational approach is probably the only move that could temper his mistakes and faults and provide

the possibility of finding a constructive role in life for him. The best corrective situation into which I think C could have been plunged would have been to offer him a highly responsible position calling for a development of his talents *far beyond the level that he had already achieved and a range of knowledge well beyond that which he actually possessed.* If C could then be manipulated so as to resort to sympathetic colleagues for help, their efforts in making him realize how many more capable people than himself were on the scene *might prove* to be the corrective straw that would help to break the stubborn camel's back. Whether C will ever receive the opportunity to step into such a corrective situation is a matter for conjecture.

4. *Case 4. The Budding Playwright*

D was a young man of 24 who had grown up in a suburb of Salt Lake City, Utah. According to his own story, he skipped town after making both a mother and a daughter pregnant. He landed sometime later in the city in which he was then serving his prison term. Being unemployed, hungry, and with funds which were exhausted in a few weeks, he took to forging checks and to shoplifting. He was caught at both and received a three-year term, both because of his youth and because this was his first offense. At the time I met this young man, he had a few months to go to serve out his term. He planned, following his release, to marry "a good kid" who was waiting for him and whom, apparently, he had respected enough so that other women had become the natural outlets for his sexually predatory propensities in the past. He intended to go to New York City and try to find a job there, marking time on any acceptable job while trying his hand at commercial plays. His great dream was to be a successful Broadway playwright. Everything about D pointed to the fact that the odds were in favor of his going straight. Both his mistakes were apparently the results of youthful indiscretions. A misguided attitude towards sex and the subsequent panic over its results took him far away from home. Desperation and hunger landed him eventually in jail. Those who got to know D, however, would have sworn these measures were out of character, a result of stress and fear that he had not yet learned to handle, but would, as time went on.

During his three years in prison, D had turned out three large typewritten volumes which together constituted a collection of his writings. These included poetry, short stories, and plays. He both read and wrote voluminously. He had succeeded in selling some poems and short stories, but obviously had no commercial outlet for his plays. Several staff members with some background training along literary lines had had occasion to read some of the things

D had done in each of these genres. All of the particular pieces read were regarded as mature and exhibited a polish and sophistication which seemed to be well beyond D's years. It was D's plays, however, which, *at least on paper*, were the most impressive items in his voluminous output. They dealt with serious themes and reminded one, to some extent, of the early O'Neill, a playwright whom D had in fact read and by whom he was probably greatly influenced. One original aspect of D's technique remains in my memory. He frequently made use of a scene which represented the daytime phantasy or an actual dream of a main character. What was extraordinary was his ability, by means of montage techniques fully described in the play—involving characters, backdrops, and discontinuities of action—to achieve a visual representation of the language of the dream. He succeeded in carrying this off in such a way that these effects were organically related to the rest of the action of the play. The ambition to achieve a technique of this sort was in part due to his reading of Fromm (5) and others on the meaning of dreams and on the meaning of symbolism in general.

Apart from the novelty of this technique, what also remains in memory is an outstanding concern with the life of the Amish, which was a favorite topic for D and had already entered into the creation of one of his plays. D was fascinated by the life of the Amish. He saw in the natural simplicity of their lives, unfettered by gadgetry and our modern preoccupation with gracious living, something which promoted a healthiness and honesty of outlook. He was convinced that such an outlook would result in less personal suffering, frustration, and confusion than are offered in a world dominated by mechanization, industrialization, and urbanization. He had therefore completed one powerful play which, as a character study, achieved its message by juxtaposing some Amish with some effete, dependent city people with no roots in nature and no clear-cut sense of self. He threw these people together into a setting of common difficulties which were guaranteed to bring out what character, quality, integrity, and resourcefulness his *dramatis personae* possessed—if, indeed, they possessed these qualities at all. Needless to say, his effete city-dwellers came off second best. But the action and theme of D's play were developed with perception and an insight into character contrasts that was magnificent.

D had one other unusual literary gift of importance. He would take a well-known short story or a chapter from a well-known novel, and reverse the English, so to speak, on the characters and the action. By this I mean that he would interchange the roles of hero and villain, without changing their characters, by modifying the plot, so that the transformation was credible because of the change in action necessitated by the modification. His knack of doing this

was so expert that he succeeding in shifting the reader's sympathy from hero to villain and *vice versa,* even where the new hero seemed full of faults and the new villain seemed quite human. He would also take a short story by O'Henry and shift the consequences of the behavior of the main characters from a tragic to a happy status or *vice versa.* He took pride in being able to introduce some slight but deft touches into the total situation which made the changed version seem as realistic as the original.

When asked why he did this, D explained that this reflected what he called his philosophy of "accidentalism." According to this philosophy, little was predetermined by any man's or woman's character. What happened to the person was purely situational and might turn on a trifling choice which could easily have been displaced by another choice made by the same character at the same time. D was a statistical environmentalist with a vengeance. The conclusion which D drew, however, from his philosophy of "accidentalism," was that no man has the right to judge another unless he is willing to take into account the total context in which an act has been committed, so that its accidental status can be perceived. I strongly suspect that this philosophy, itself, was no accident, but had evolved as a form of unconscious protest against his own fate. Certainly it could be maintained that it reflected the bitterness D felt towards a society which had subtracted three years of full freedom from his life because of two "accidents" which it had not totally understood at all.

D had finished high school at 19 and worked as a clerk for two years. This was the occupation he had been in before he was forced to leave Utah. In a sense he would be leaving prison with no work experience. He could expect to get some type of mediocre employment in the community in which the prison was located and eventually satisfy his parole board that he could be trusted to go straight. Then he would probably move to New York City with his young wife: the girl who was waiting for him back in Utah. In New York City he would try to get some work and strain with might and main to break into big-time theatre and the circles associated with it. If a child came, that would make his try just that much more difficult. One saving grace for D was that he had firmly made up his mind to take courses, evenings, in the theatre arts, at The New School For Social Research, while at the same time working towards a degree. His resolve was admirable. The task of fulfilling it would be bound to cause strain, what with a wife, youth, little schooling and less experience, and no savings. The strain, of course, would probably be lessened somewhat by a working wife.

Should D fail to make it, this would signify less a defect of character and creativity and more a failure of society to recognize this boy's talents and to

provide some means to encourage him and make it possible for him to contribute the fruits of that talent to society. If social and institutional support were forthcoming, one could be fairly certain that recidivism would not be a problem in a case of this sort. My own impression is that a three-year prison term had sobered D sufficiently to enable him to find himself, crystallize his dramaturgical ambitions, and take all the immature adolescent vinegar out of him. To paraphrase D's "accidentalism," lacking such institutional aids as I have mentioned, we are forced to say that, once released, his fate "would be in the lap of the gods."

5. *Case 5. The Botanist*

E was a prisoner of about 55 in charge of the penitentiary greenhouse. He was a lifer who had committed murder, killing his wife's lover when he discovered her infidelity. At the time I made his acquaintance, E had been in prison for more than two decades. He was intelligent, a good conversationalist and, in spite of being a convicted murderer, quite gentle. He could look forward only to ending his life within penitentiary walls since there was not the remotest possibility of a pardon for him.

E's distinction was an unusual one and in many ways perhaps the most remarkable of the five case histories presented here. Early in his prison career he had asked permission to be the assistant of the prisoner who at that time was in charge of the greenhouse. Eventually he succeeded to full responsibility for its upkeep, himself. He manifested an early interest in learning the names of different plant species, their botanical characteristics, and the optimum physical conditions for their growth and survival in the unnatural ecology of a greenhouse. He then became interested in soil science in relation to growth improvement of the plants under his care, and before long was something of an amateur edaphologist. The next stage in his amateur scientific development was a turn towards an interest in systematic horticulture, towards the techniques and possibilities of grafting, and an effort to find out what exotic, flower species would be cultivable in a greenhouse atmosphere. This period was followed by one in which E showed an interest in the medicinal properties of plants—an interest which had to be confined initially to reading only—and by an effort to ascertain which plants of medical interest could be grown in the atmosphere of a greenhouse. From this his involvement spread to the growth characteristics of plants closely related to medicinal varieties whose seeds were unobtainable. By this time E had obtained the privilege of subscribing to a number of professional periodicals in biology, plant physiology, and botany, and these he read avidly.

It was inevitable that the day would come when he would get around to plant genetics. Once this interest was kindled, he mastered some of the available literature and took to experimenting directly in this field, himself. The greenhouse offered only modest opportunities for certain types of research along these lines, but he made the most of these. As a result of several successful experiments, he decided to write up some of his findings for professional publication. His work was encouragingly welcomed by professional journals, was well thought of, and was regarded as making a worthwhile contribution to the field of plant genetics. He was credited with several original but minor discoveries. It was not long before he entered into professional correspondence with respected botanists, plant physiologists and plant geneticists, in relation to difficulties he met with in his problems. What is even more surprising is that after a while a number of distinguished academic researchers began to solicit his ideas on some of their own problems, so that he was able on more than one occasion to clear up some of their difficulties.

At the time I made E's acquaintance, he had been reading deeply for about two years in mathematics and was beginning to plunge into mathematical genetics, hoping to make use of what he was learning along these lines, in connection with plants. He had read Hogben (8) enthusiastically and, at the time he was telling of this new enthusiasm, he was hoping to read and understand Sewall Wright (18). This last objective, I realized, would be way beyond his abilities even in the face of the mathematical education he was attempting to give himself. He took particular pride in showing visitors to the greenhouse a spot he had set aside in which were growing new plant varieties which he had himself developed and reported on in professional journals. At about this time he was also beginning to acquire enough knowledge of chemistry to try to remove what to him had been long a stumbling block in his efforts to understand plant metabolism. In his attempts to achieve some sophistication in chemistry, he would ply the prison doctors with endless questions and finally received permission to use certain reagents for some of his experiments.

E represents a creative and gifted personality who had initially been labeled insane for a crime of passion to which perhaps most respectable citizens would be susceptible under stress. Murder of one's wife's lover is in great measure a culture-bound response, associated first of all with the residues of a frontier psychology which at one time permitted a cuckold to wipe out the stain to his honor in this extralegal fashion. Second, there is a matter of irrational ego-involvement in this eternal-triangle type of situation in which one's virility and masculinity are presumably questioned. Murder is no way, of course, of

removing the doubts insinuated concerning one's physical masculinity, and any effort to justify a motto of "ecrasez l'infame" by homicide is clearly unacceptable even for the eternal-triangle situation. Nevertheless murder is so frequent a response in these situations as to suggest that it is a subcultural phenomenon among some highly individualistic males who wear the mantle of social and legal restraints very lightly indeed. For this reason one would think that society would regard a crime of this sort, by an individual with an otherwise unblemished record, as one equivalent to temporary insanity, and regard a party guilty of the crime of passion as one who has paid his debt to society after a reasonable period of incarceration lasting several years—perhaps even a decade. One would be doubly well disposed towards a solution of this sort, where the criminal involved is as gifted and creative as E, and where the fruits of his talents can be of genuine benefit to society. Such an ideal may be realized in the not too distant future. In the meantime, the freedom of men like E, which perhaps might have resulted in an even more productive career than the one developed in prison, is gone forever. The social losses of this shortsightedness are probably incalculable.

C. A Group Example of Creative Activity: The Penitentiary Follies

The preceding section was concerned with individual cases of creativity among criminals in which each criminal's talents served only his own ambitions, with the exception perhaps of the greenhouse caretaker. The situation I now wish to describe reflects the creativity of those whom society has labeled "criminal," but the talents serve a communal purpose. Although the phenomenon is a collective one, nevertheless it was made possible only by the effort of individual criminals—albeit individual effort which was difficult to disentangle from the completed group product it had helped to create. I am referring to an annual frolic or show, put on by the prisoners themselves, and which was referred to in this particular prison as "The Penitentiary Follies." Here, in a production which lasted for several hours, a healthy exhibitionism was given a chance to let off steam. The Penitentiary Follies was essentially a musical, but the creative talents shown by prisoners who participated in its production were demonstrated in many ways.

First, there is the nature of the production itself, whose script was often highly imaginative and well organized. Then there were the original songs for the production, composed by prisoners trying to follow the guidelines of the script, as well as the originality of style in rendition created by those members of the cast who deliberately sought an unusual method of delivery. Next

was the ever-present humor of each act and scene—humor which could have more than competed with the best of stage and screen because the prisoners did not have to worry about box-office receipts and the possibility of offending various publics. Then too, one must emphasize the originality and creativity shown in the manufacture of backdrops, costuming, and makeup. Outstanding in all these productions was the capacity of certain prison inmates to impersonate female roles, both as to voice quality, stance and gesture. Many a spectator would have been unable to tell that he was watching a male impersonator if he had met that same impersonator in a normal, social context. Although these impersonations were amazing to behold, the reader should not make the mistake of assuming that the female impersonator was necessarily a passive, prison homosexual. This was almost invariably not the case and often some of the prison's most aggressive and masculine inmates carried off these roles superbly. Finally one should not forget the originality and incisiveness of the reviews which these productions received in the prison newspaper. With certain restrictions, a substantial public of both sexes was able to view these productions, in addition to the prisoners, themselves. The Penitentiary Follies generally ran for several nights. To judge by the enthusiasm and good time which every audience seemed to have, they were as well received as any professional musical.

The existence of this cultural phenomenon in a penal institution should give us food for thought. The most conservative conclusion we would be justified in drawing is that there is a good supply of acting and play-producing talent among "criminals," which, if it had been tapped early enough and drawn upon, might have provided the vocational satisfactions and prestige which the community failed to provide. This is certainly an expensive failure when we think of the blighted individual lives involved and the social costs of criminal enterprise.

D. Conclusions

That somebody missed the boat in the task of harnessing the creative gifts and talents described here, to social purposes and social satisfactions, we may be sure. Such personal resources are rare both in the general and the prison population. America believes, however, in providing guidance and help for those individuals who possess creative talent, where they are members of the community at large. An extension of this attitude to the convict with creative gifts seems warrantable and humane, particularly in relation to the problem of rehabilitation, and will probably return eventually to the community a value which will far exceed the cost of the guidance thus provided. In short, the provision of a social agency or institution, whose function is to detect those ex-

convicts with creative abilities of one sort or another, in order to find a socially useful place for them and their talents in the larger community, would, I am sure, prove to be practical and beneficial. Such an agency would have the satisfaction of restoring the birthright of freedom to ex-convicts in a way which would make that freedom more valuable. At the same time, irreplaceable human resources would be salvaged for society. We have too little of these anyhow in the light of growing social needs. If we can cut our losses in any way and in any quarter—and the prison population is no exception—the community will be well served.

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A SPECIFICATION EQUATION FOR PREDICTING TREATMENT RESPONSE*

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A. INTRODUCTION

There is pressing need in diagnostic work to predict the treatment program to which an individual will respond with greatest amelioration. Particularly in the field of delinquency is this so, where diagnostic centers are faced with the problem of assigning great numbers of delinquents to a variety of treatment facilities. The presenting problems of these delinquents vary considerably, and little is found which is common to all (4). Treatment needs accordingly vary in proportion to the presenting problems. In addition to the highest diagnostic predictive accuracy, procedures providing maximum economy are needed because of the heavy demands made upon diagnostic personnel. Also, changing populations and slow but constant changes in the treatment variables themselves render predictive statistics perishable.

Two modern scientific and technological innovations offer a solution to this problem. They are the factored personality tests and the increasing availability of the smaller, more economical data-processing systems (2, 3). The use of the factored test makes possible the use of the specification equation as a powerful multivariate predictive device (1). Since the factors of such tests are essentially uncorrelated, except as rotation to oblique simple structure requires, a formula is available which greatly simplifies the calculation of an individual's score on the criterion being predicted. Explained in detail elsewhere, the method is simply to find the coefficients of correlation between each of the personality factors and the criterion to be subsequently predicted. The correlations are squared and summed, and the square root of the sum of the squared coefficients is the multiple correlation (R), if one will tolerate the slight correlation between factors that the oblique rotational solution might require. Weights are then calculated by dividing the original correlations by R. The difference between the sum of these weights and unity (i.e., 1.00) is then multiplied by 5.5 if the predicted score is to be on a sten scale. This quantity is a constant

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[1] Green Hill School, Chehalis, Washington, is an institution of the Bureau of Juvenile Rehabilitation, Department of Institutions, Washington.

which is added to the resulting score (2). The individual's factor scores are then multiplied by their corresponding weights to find the predicted criterion score.

B. Method

The High School Personality Questionnaire was administered routinely to all juveniles aged 14 years and older received by the Washington Bureau of Juvenile Rehabilitation at its diagnostic center.[2] Those individuals who were subsequently assigned to this institution were exposed to eight months of the treatment program. At the end of this period, those individuals appeared before a review board whose members reviewed written reports from all areas of the program. The individual was then interviewed and a decision made whether or not to parole. These eight to 10 review-board members then independently rated the individuals on a 10-point scale designed to measure treatment response to the institutional program. Extensive studies of the reliability of ratings have shown interrater reliabilities in the .80's for this number of raters (5).

Forty-one delinquent boys who appeared consecutively before this review board over a period of nine weeks were selected for this study. The specification equation was calculated by the Pacific Northwest Research Computer Laboratory's IBM 709 data-processing system, using the procedure indicated above.

C. Results and Discussion

The multiple correlation thus obtained was $R = .60$ (where $N = 41$, significant beyond the .05 level). The weights for the 14 personality factors are as follows: A, .03; B, .09; C, —.46; D, .31; E, .03; F, —.14; G, .60; H, —.17; I, .24; J, .17; O, .22; Q_2, —.29; Q_3, .05; Q_4, .19; and Constant, 6.0.

It should be noted that these weights were calculated from correlations between the criterion ratings and the prediction instrument which was administered at least eight months prior to the ratings. They do not take into consideration personality changes which might have occurred as a result of treatment or other causes. The equation does describe as the "raw material" most successfully treated here, the delinquent of weakened ego strength who is excitable and sensitive, given to feelings of guilt imposed by a functioning superego, who is not an excessively group-dependent or group-imitative individual. Presumably such an individual would seek out treatment personnel

[2] The Fort Worden Diagnostic and Treatment Center.

in preference to the delinquent peer group as a means of alleviating guilt arising from past acting out.

The calculations required for a 14-factor specification equation are simple but laborious and time-consuming—sufficiently so that the time consumed in their computation would be self-defeating as a clinical tool if manual computation were necessary. In a 14-factor problem, the coefficients of correlation alone would be so. Fortunately even the smaller data-processing systems today can be easily programmed to do this work. With the rapidly expanded use of such computing devices in business and industry, machine time will be much more readily available for clinical users (3).[3] With the statistical work done precisely and in a matter of minutes, the specification equation, in conjunction with factored tests, is a technique which has wide clinical applicability. Not only is it reasonable to use this device to predict which receiving institution best meets the individual's needs, but problems such as the prediction of the appropriate treatment program within that institution, and even the choice of therapists, lend themselves to the specification-equation approach. It is furthermore apparent that the prediction and ultimate control of recidivism is within the scope of this multivariate procedure. And finally the subtle but certain changes in populations and changes in treatment variables can be continually checked by periodic small-sample reruns. Once the computer program has been compiled and executed, mere minutes are required to rerun the outdated specification equation.

D. Summary

The need for accurate and economical predictive devices required for treatment planning for delinquents was discussed. Two modern innovations offer a solution to the problem. They are the factored personality test and the increasing availability of the smaller, economical data-processing systems which make possible the use of the specification equation on a wide clinical basis. A specification equation used for the prediction of response to treatment was given. Uses of this powerful multivariate technique in the clinical setting were discussed.

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[3] The Chehalis-Centralia area, whose combined population is less than 10,000, has, for example, three such computers.

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BIRTH ORDER AND SUBJECT RECRUITMENT*

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A. PROBLEM

Although knowledge concerning correlates of birth order is far from definitive, positive findings continue to be reported which have implications for the purity of research in social psychology, especially small-group experiments. For example, it was recently found (2) that firstborns are more yielding than later borns in the classical Asch situation (1) and that firstborns disproportionately contribute to membership in five large juvenile gangs in Chicago (2). Firstborns were found to be more susceptible to social influence in a standard autokinetic situation (5). When firstborns are found to differ from later borns in their affiliative need (4), attraction to groups, suggestibility, conformity, etc., it is appropriate to be concerned with ambiguity and limited generality in the interpretation of small-group experiments. Participants in such groups may be largely firstborns, at least if membership is voluntary. Thus, Capra and Dittes (3) found a higher proportion of firstborn than of later-born males volunteering for a small-group psychology experiment. The same bias appears in Weller's attempt (6) to replicate Schacter's relationship between birth order and "anxiety." Weller recruited his female *S*s into "groups of six" and reported ordinal position data for the "High Anxiety" condition: only 35 per cent of the *S*s were later born. Capra and Dittes (3, p. 302) presume:

> This bias would operate similarly in those instances of compulsory participation for course requirements, so long as the student has a choice of participating in one of several experiments. Our interpretation is that the appeal of guaranteed interaction . . . is more likely to attract first borns.

The latter prediction was the hypothesis of the present investigation.

B. METHOD

Fifty-five men and 55 women in three introductory-psychology sections at the University of Pittsburgh were handed sign-up forms during a regular class session. The form included the following:

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> To provide experience in research participation for all students in introductory psychology and to facilitate research objectives in the psychology department, select *one* of the experimental sessions described below. There are two experiments, A and B. In both, participants will engage in a series of brief problems requiring simple skills. The exact nature of the problems will be discussed at the beginning of the experimental session. In Experiment A, participants will work together with other students. In Experiment B, participants will work by themselves alone in a room without the presence of any other persons. Choose A or B.

The form also contained information about the time and place of the experiments, arranged to be of maximum convenience to the *S*s. Finally, there were questions (on age and age of siblings) used to determine birth order.

A week later, the same *S*s were given another form to fill out in class.

> Last week students in several sections of introductory psychology were asked to indicate their preference for one of two experimental sessions. In order to give everyone his choice and at the same time maintain a balance in each type of experiment, certain additional information is required. Please indicate your original choice, and, by checking the scale, how willing you would be to change it.

The "together" and "alone" aspects of Experiments A and B were again described; *S*s indicated their original choice, and then checked a scale accompanying the following item: "As regards changing into the other experimental session, I am . . . ." The scale had 75 points, each fifteenth point accompanied by labels running from "Completely against switching" to "Completely willing to switch."

C. Results and Conclusions

All 110 *S*s correctly recalled their original choice of experiment, suggesting that the preference was reliable and important enough to be remembered for a week. The data in Table 1 show that two-thirds of the *S*s preferred "together" rather than "alone." Preference for "together" was somewhat greater for women (73 per cent) than men (58 per cent), but this difference was not statistically significant.

The data show no relations between birth order and choice of experiment. When firstborns (first and only) were compared with later borns (midborn and last), all differences between per cent choosing "together" and "alone" were unreliable. The only noteworthy findings were in the "willingness to switch" data. Women were especially willing to change from the "alone" to the "together" experiment. This conclusion was supported by a test of the second-order difference comparing men and women, and their willingness to

change from "together" *vs.* from "alone." The two-tailed *t*, 3.03, was significant at beyond the .01 level. Finally, midborns, with the exception of women choosing "together," showed a greater willingness to change than firstborns, only, and last borns. Two-tailed *t* tests comparing midborn willingness-to-change scores with "other born" scores were significant at or beyond the .05 level—an interesting but unexplainable result.

Capra and Dittes (3) solicited volunteer *S*s in their dormitory rooms, while the present procedure was probably more similar to prevailing recruitment techniques in that (*a*) sign-up forms were distributed by an instructor, (*b*) participation was related to psychology-department projects,

TABLE 1
PROPORTION OF SUBJECTS CHOOSING TOGETHER (OR ALONE) AND WILLINGNESS TO CHANGE[a] IN RELATION TO SEX AND BIRTH ORDER

	Together					Alone				
First order	First	Only	Mid	Last	Total	First	Only	Mid	Last	Total
					Men					
Number of *S*s	11	6	5	10	32	10	2	3	8	23
Per cent	34.4	18.8	15.6	31.3	58.2	43.2	8.7	13.0	34.8	41.8
Mean willingness to change	33.5	34.7	53.0	28.0	35.1	31.7	23.0	66.3	36.6	37.2
					Women					
Number of *S*s	19	1	8	12	40	4	2	6	3	15
Per cent	47.5	2.5	20.0	30.0	72.7	26.7	13.3	40.0	20.0	27.3
Mean willingness to change	42.5	45.0	43.0	39.1	41.7	51.3	50.0	61.2	50.0	54.8
					Men and women combined					
Number of *S*s	30	7	13	22	72	14	4	9	11	38
Per cent	41.7	9.7	18.1	30.5	65.5	36.8	10.5	23.7	28.9	34.5
Mean willingness to change	39.2	36.1	46.9	34.1	38.7	37.3	36.5	62.9	40.3	44.1

[a] The higher the score, the greater the willingness to switch into the other experiment.

and (*c*) all students were expected to participate. Under these conditions, the present data imply that concern with a birth-order bias is unnecessary. Sex may be a source of bias. The proportion of women choosing "together" and their relative eagerness to change from "alone" to "together" indicate caution in interpreting research on social processes which employs only female *S*s (4, 5, 6).

D. SUMMARY

Fifty-five men and 55 women in introductory-psychology sections were asked to participate in Experiment A (work together with other students) or B

(work by themselves alone). Birth order was unrelated to choice of "together" or "alone." Women, more than men, tended to choose "together" and expressed greater willingness to switch from "alone" to "together" when "alone" was their original choice.

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PERSONALITY IMPRESSIONS OF SELF-PUNITIVE AND EXTRAPUNITIVE STIMULUS PERSONS* [1]

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A. PROBLEM

The fact is well established that individuals ascribe negative personality qualities to stimulus persons who show antagonism toward others (8, 9, 10). Devaluation of antagonistic stimulus persons has been evident in descriptions prepared by bystanders, although less so than by individuals who were direct recipients of aggression (7). Less clear, however, is whether or not this devaluation also occurs on the part of observers when negative stimulus persons make themselves, rather than their associates, the target of aggression. This problem was the focus of the present two separate investigations—one involving the relatively informal social setting of small-group discussion and the other a formal lecturer-audience situation. Within the two types of social contexts, comparisons were made between impressions formed of stimulus persons who verbalized self-punitive as opposed to extrapunitive statements.

The formation of negative impressions of extrapunitive persons is understood in terms of balance theory [as applied by Heider (3)] as representing the effects of harm, dislike, and retribution. Individuals who are harmed by another (e.g., observers who are attacked by an extrapunitive stimulus person) acquire a dislike for him and strive to obtain retribution. Harm in this instance refers to the undermining of an individual's self-esteem and retribution refers to behavior for restoring it. Thus individuals in the absence of other opportunities for behavioral expression can, by ascribing negative personality qualities to an extrapunitive person, reciprocate his hostility and in so-doing attempt to maintain their own self-equanimity. This type of interpersonal condition was intended for individuals in the speaker-audience study wherein they were required to listen to an extrapunitive lecturer and permitted only to record personality impressions of him.

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[1] Portions of the results reported herein were contained in papers read at the Annual Meeting of the Eastern Psychological Association, Philadelphia, April, 1961, and New York City, April, 1963.

In contrast with the lecturer-audience situation, a small discussion group affords a harmed individual much more opportunity for immediate verbal redress. Small-group permissiveness as a factor in reducing inhibitions to aggression has been pointed out by Berkowitz (1). If the harming individual (an extrapunitive group member) acquiesces to the redress, he in effect [as noted by Heider (3)] rescinds his previous insults. Thus the harmed individual no longer needs to feel harmed and is enabled to express more positive sentiments toward the extrapunitive stimulus person. This contention has been supported in observations by Thibaut and Riecken (10).

Further possibility is that the individual who is successful in counter-aggression may, through an ensuing motive of reparation, rate the stimulus person more positively than otherwise under noninstigating conditions. This reasoning led to the prediction that impression ratings of extrapunitive stimulus persons would be more positive following small-group discussion than at the end of a classroom lecture. Ratings in both instances were expected to represent a halo effect of either positive or negative sentiments held by individuals toward the stimulus person—homogeneity in personality impressions being a further application of Heider's balance hypothesis.

Unlike relationships of observers with extrapunitive individuals, relationships with self-punitive stimulus persons have not been explicitly dealt with in the literature. Consequently, a formulation had to be derived logically. A self-punitive group member or lecturer may be said to harm himself and not the observer. Therefore he is unlikely to evoke negative sentiments in the observer, certainly less so than when as a stimulus person he behaves extrapunitively. Moreover as Heider (3) has pointed out in comparing one's own lot with that of another, the presence of a self-disparaging individual enables the observer to consider himself more fortunate or otherwise a better person. The other individual, in deflating his self-image, serves to inflate the self-image of the observer. Thus the observer in a sense benefits from the self-depreciation of the stimulus person and would consequently be induced to express liking for him. The observer's impression ratings would accordingly be relatively positive and disclose a halo effect.

Further reasoning with respect to forming impressions of self-punitive stimulus persons, however, led to an opposite and seemingly more valid hypothesis. A stimulus person in expressing hostility toward self could also be viewed as conveying hostility toward others—more indirectly, for example, "If he dislikes himself, he must surely dislike me." Consequently he would induce dislike as a reciprocal reaction from his associates.

Self-punitiveness can also be understood to represent a violation of the

social sanctions against verbalizing private feelings in public or among strangers, especially feelings of low self-esteem. Inappropriate display of weakness would in Heider's terminology instigate "ought forces" and be interpreted by observers as indicative of a harming individual. Moreover, a stimulus individual who makes so-called autistic remarks of low self-regard isolates himself and erects a barrier for establishing rapport with another. This barrier, in turn, would obstruct or detract from the clarity of communication on which others are intent when participating in group discussion or attending a classroom lecture. In this sense and with reference to Jones and Thibaut's theory of inferential set (6), self-punitive actions of a stimulus group member or lecturer would interfere with the value-maintenance and situation-matching sets of other group members or members of the audience. Consequently self-punitive stimulus persons would arouse sentiments of dislike and reactions of hostility of the same kind as those obtained with extrapunitive persons.

Impression ratings of the two types of punitive stimulus persons in a lecturer-audience situation would be similarly affected in a negative direction. In more permissive settings (small-group discussion), the opportunity for verbal redress would, however, appear to have less ameliorative effect on the relationship of individuals to self- than to extrapunitive stimulus members. Because an individual observer is not a direct target of aggression from a self-punitive person, he is presumably less inclined to exact retribution. In contrast with extrapunitiveness, the display of self-punitiveness in a group member would probably evoke reactions of avoidance rather than retribution on the part of other group participants. The restraint upon other members in responding with direct counteraggression would arise from the cultural norm which prohibits injury to so-called weaker or self-punitive persons. Such normative definition of the propriety of aggressive acts has been emphasized by Berkowitz (1). Therefore, in the absence of redress, observers would be expected to form negative personality impressions of self-punitive stimulus persons in informal group discussion as well as the more formal lecturer-audience situation. Ratings which reflect negative halo would also be expected for extrapunitive lecturers but not stimulus group members.

Because of the diversity of possible theoretical predictions for response to the self-punitive stimulus person, this aspect of the experiments was necessarily exploratory.

B. Method

1. *Summary of Experimental Procedures*

In the first study, subjects (*Ss*) were assembled in small discussion groups and required to reach a consensus on an assigned topic. Halfway through the

discussion period, one of the group members (the stimulus person) introduced a set of either self-persecutory comments or remarks designed to arouse aggression in others. Other group members rated the stimulus person (SP) on a list of personality adjectives both before and after the experimental procedure.

In the second study, a student lectured groups of other students. Speeches were contrived to include critical asides which were either self-debasing to the speaker or antagonistic to listeners. With the lecturer as SP, *Ss* submitted personality ratings before and after the critical presentation. This procedure was followed by a second one wherein *Ss* wrote criticisms of SP and his presentation. In half the groups, these slips were merely set aside and SP continued with a second speech devoid of personal references. In the remaining groups, however, criticisms were noticeably read by the lecturer. He then gave the neutral presentation. The latter sequence was intended to represent SP's acquiescence to the written retaliation of his audience. At the end, *Ss* filled out a third and final impression rating sheet. The two experiments are described in detail below.

2. *Experiment I: Group Discussion*

a. Subjects. Women students who were known to be unacquainted with each other from a prior sociometric rating were assembled to form 24 three-or four-member groups. All were recruited by the experimenter (*E*) from sections of introductory psychology. One member of each group served as SP, leaving a total of 64 *Ss*. Of these, 31 were confronted with a self-punitive SP and 33 were exposed to an extrapunitive individual. The number of groups was the same for both conditions, 12 in each. SPs were all different individuals selected at random from the composition of a scheduled group and, unknown to other group members, were instructed ahead of time in performing their punitive roles.

b. SP's punitive comments. SPs were required to memorize and interject halfway through the discussion period either a self-punitive or extrapunitive statement. Assignment of treatment was random. The self-punitive statement was as follows:

> It's awfully rude of me to keep talking about you the way I do. I'm awful looking—all of me, and I have nobody to blame but myself. So I can't blame you.

The extrapunitive comment was similarly worded with second-person pronouns replacing first-person, and *vice versa,* thus shifting direction from SP to other members. SP was instructed to refrain from further conversation following the critical remarks until at least one other individual had conversed.

If questioned on the comment by the group, SP was told to respond by saying either, "Never mind—I just wish I would stop talking about you" or "Never mind—I just wish you would stop talking about me," whichever corresponded to the previous statement. Further questioning was to be countered by non-committal statements as supplied in advance by *E*. During the foreperiod and the remainder of the discussion and procedure, SP was encouraged to behave as she would ordinarily.

To lend to the credibility of the critical remarks, groups were required to discuss two personality tests taken at the beginning of the procedure. The effect was that members customarily volunteered feelings about themselves and others but with less intensity and in more disguised form than did SP.

Although SPs displayed individual variations in role playing, some being more emphatic and less self-conscious than others, all introduced the prepared statements and were able to resist any pressure of group members to offer further clarification. No consistent differences in delivery of the two sets of punitive comments were evident from taped discussions.

c. Impression rating sheet. *Ss* were presented with 21 bipolar personality adjectives, each forming an eight-step rating scale. Items were selected largely from scales used in earlier investigation (e.g., 5) and classified by a panel of judges to form the following trait clusters: punitiveness (self-debasing, vengeful); competence (quick-witted, intelligent, disorganized); motivation (inactive, competitive, easygoing, does his best); acceptability (considerate of others, warm person, likeable, friendly); and resistance to influence (flexible, obstinate, firm). Also a single item was included on dependability. The same panel of judges also rated items for social desirability of response. Thus the scale provided a total impression rating of trait desirability (measure of halo effect based on 20 of the 21 items) and an impression rating for each trait cluster. On one-third of the items, scoring for trait cluster was opposite of scoring for trait desirability.

d. Procedure.

(1). *Ss* were seated around a table. *E* ascertained that group members were unacquainted and administered the first impression rating sheet. In so-doing, *E* remarked that such ratings were a way of discovering how discussion enables individuals to get to know each other. However, because of time limitation, he indicated that he had to restrict ratings to one SP and by "random choice" it was Miss C (preinstructed member). SP was told to rate herself.

(2). To provide an "icebreaker" and to serve as a discussion topic, *E*

required group members to draw a picture of actual self and ideal self and to perform on a short perceptual memory task.

(3). When the group members completed the tasks, they were instructed to discuss for 15 minutes the question, "What can be determined about an individual's personality from the two tasks just performed?" and to come to some kind of consensus. Concern with the quality of conclusions was mentioned as another facet of the study.

(4). The discussion was conducted in *E*'s absence and tape-recorded. After seven minutes, SP introduced the prearranged punitive statements.

(5). At the end of 15 minutes, *E* returned to the room and administered a second impression rating of SP. *S*s were also required to answer an additional questionnaire and to describe in writing any specific reaction which they had to SP. The preinstructed member was asked to record any special thoughts that she had about herself during the discussion period.

(6). When all forms were collected, *E* explained the contrived nature of the procedure and requested *S*s to refrain from discussing their experience with other college students.

3. *Experiment II: Speaker-Audience*

a. Subjects. A total of 196 students, both men and women, participated as members of audiences for two male student lecturers.[2] Eight audiences, four for each speaker, ranged in N from 21 to 33 and all except one comprised sections of introductory psychology in the evening division. The one exception was an afternoon class from the same course selected because of its similar student composition. In the major analysis of results, all groups were pared to an N of 21 by random omission to facilitate statistical comparisons. A comparison of main effects in the larger sample ($N = 196$) with those in the smaller sample ($N = 168$) showed no discrepancy in outcomes.

b. Design. A $2 \times 2 \times 2$ factorial design was utilized. The lecturer who served as SP delivered either self-punitive or extrapunitive speeches. These were followed by a procedure wherein SP either read the negative reactions of his audience (condition of reciprocity of aggression) or did not (condition of nonreciprocity). Combinations of the two punitive speeches with the two conditions of audience interaction with SP were conducted with each of two speakers. In this way, variance arising from differences in individual audiences was partially entangled with variance produced by different speakers and, by treating speakers as a main effect, was to a large extent nullified.

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[2] The investigators are indebted to Norman Riker and Marvin Schechter, who served as speakers and carried out a preliminary analysis of the data.

c. Punitive speeches. To make the lectures consistent with the content of the course and to increase the credibility of the personalized punitive asides, defense mechanisms was selected as the general topic. The overall speech was prepared in two parts; the first part contained punitive insertions, whereas the second part was designed to be impersonal. Each part was timed for approximately eight minutes.

During the first presentation, the speaker interjected 12 punitive asides. These were committed to memory so that they could be delivered as "off-the-cuff" commentary. In the remainder of the speech, speakers were permitted to utilize the prepared text.

Self-punitive remarks were constructed and pretested to communicate low self-regard without overt reference to specific rated traits of the speaker. The following are examples:

> . . . their importance remains the same for a maladjusted person who causes other people so much trouble. I find myself to be like that.
>
> Going to college hasn't been much of a remedy for me.
>
> Perhaps repression could explain . . . why I'm generally inferior in sensitivity in certain courses to other people. . . .
>
> I come from a background where experiencing guilt and inhibitions are the order of the day. I hate myself for it and wish other people weren't so kind.
>
> I really wish I could stop trying to put others on the spot the way I do.

Extrapunitive insertions were similarly worded, with personal pronouns changed to shift the direction of the disparagement from self to listener.

The speakers were senior majors in psychology and in all instances were unacquainted with individual listeners. With respect to age, they were not distinguishable since audiences contained a substantial number of relatively older students. To effect uniformity of presentation, SPs dressed similarly and were coached in their role playing.

The omission of control or nonpunitive speeches was necessitated by the unavailability of audience groups and the pending graduation and entry into military service of the speakers.

d. Procedure.

(1). The section instructor introduced SPs as students in the speech department who were required to obtain outside evaluation of their speaking presence on a serious subject. The instructor also indicated that he had chosen the topic for them in order to further the aims of the students in the audience.

(2). After a brief set of neutral introductory comments, SP stopped and

his assistant (other student lecturer) had *Ss* rate SP on the impression rating sheet. This form was the same as that used in Experiment I. *Ss*' materials were identified by number.

(3). SP then presented the prescribed punitive talk. Assignment of speech and speaker to audience was randomized within the limits of the experimental design.

(4). A second impression rating was then obtained from listeners—hereafter referred to as interim rating.

(5). When the punitive speech and *Ss*' impression ratings were completed, *Ss* wrote criticisms of the speaker and his presentation on special slips provided them. Their criticisms were collected and either silently but noticeably read by SP or were tucked into an envelope by the assistant and placed in the back of the room out of SP's reach.

(6). SP delivered the second speech, neutral in content.

(7). *Ss* filled out a third and final impression rating and a brief questionnaire. The latter was meant largely to determine whether or not *S* had recognized the difference between the first and second parts of the lecture.

(8). The procedure was terminated by the assistant explaining briefly the point of the personality evaluation and requesting *Ss* to refrain from discussing the study outside of class.

C. Results

All impression ratings obtained after experimental treatments were subjected to analysis of covariance, adjustment being made for initial ratings. In terms of overall means, *Ss* tended to use the positive side of items scaled for social desirability of response. This tendency was in accord with Deutsch's observation (2) that an American norm is biased toward offering praise rather than negative evaluations of other individuals. However, with the overall initial mean as a base level, ratings were found generally to decline in both experiments following the punitive treatments.

1. *Impression Ratings and Punitiveness*

As shown in Table 1 and Figures 1 and 2, both experiments revealed similar differences in impression ratings of self-punitive and extrapunitive SPs. Contrary to hypothesis, the variation in social setting and provision for expressing counter aggression did not appear to be critical determinants. The similarity in results of the two studies was even more striking when considering the differences in *Ss* and SPs and also in the operational definitions of punitiveness.

Mean differences in overall ratings of desirability of SP's personality traits

TABLE 1

ADJUSTED MEAN DIFFERENCES IN IMPRESSION RATINGS OF SELF- AND EXTRAPUNITIVE STIMULUS PERSONS

	Group discussion (Total $N = 64$)			Speaker-audience (Total $N = 168$)					
				Interim rating			Final rating		
Rated trait	$M_{diff.}$[a]	t ratio	p value (1 tail)	$M_{diff.}$[b]	F ratio	p value	$M_{diff.}$[b]	F ratio	p value
Punitiveness[c]	—1.12	2.24	$< .025$	—3.48	81.56	$< .01$	—1.43	18.90	$< .01$
Competence	—.65	.67	$> .20$	—1.04	2.10	$< .20$	.38	< 1.00	$> .20$
Motivation	—1.59	2.89	$< .01$	—2.89	14.11	$< .01$	—.19	< 1.00	$> .20$
Personal acceptability	2.36	1.98	.025	6.01	67.41	$< .01$	2.77	12.12	$< .01$
Resistance to influence	—1.60	1.45	$< .10$	—5.68	54.62	$< .01$	—1.70	5.24	$< .025$
Dependability[c]	.22	.72	$> .20$	—.65	7.33	$< .01$	.18	< 1.00	$> .20$
Trait-desirability	3.15	1.57	$< .10$	8.92	2.39	$< .20$	4.66	3.79	$< .10$

Note: Positive difference values represent a higher mean rating for self- than for extrapunitive SP.

[a] *N*s for self-punitive and extrapunitive conditions were 31 and 33 respectively.

[b] *N* for each condition of punitiveness was 84.

[c] Rating of punitiveness was derived from two items and dependability from a single item. Remaining trait clusters related to four items each.

failed to meet conventional statistical criteria (p value less than .10 or .20 in either experiment). Nonetheless, the direction of differences consistently favored self-punitive speakers and was contrary to the final hypothesis. This finding seemed to arise largely from the marked differences found for the trait cluster of acceptability (p value less than .025 or .01). Items defining acceptability were scored in the same direction as desirability of traits.

The prediction that impression ratings would be uniformly positive or negative with respect to punitive treatments was not borne out. Instead an impres-

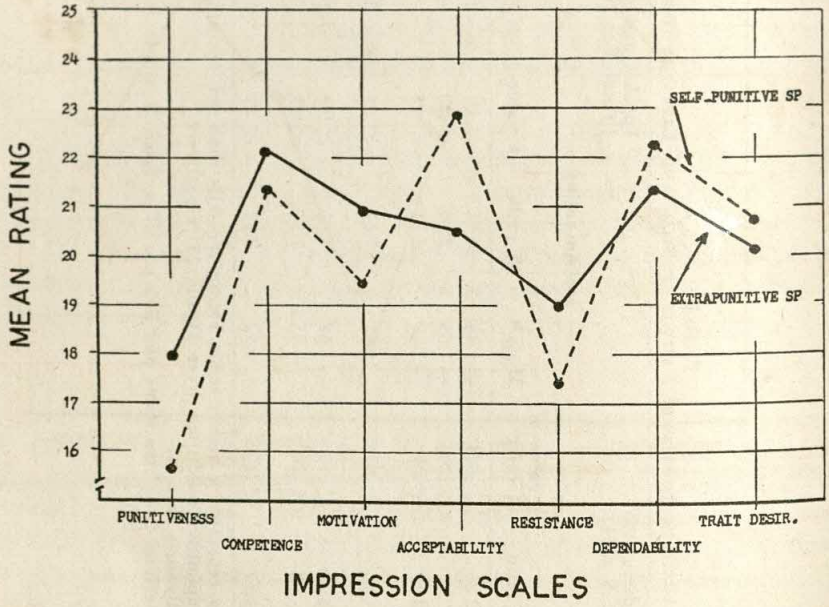

FIGURE 1

IMPRESSION PROFILES FOR SELF-PUNITIVE AND EXTRAPUNITIVE GROUP MEMBERS

sion profile as shown in Figure 2 was obtained. Although self-punitive SPs were rated as more personally acceptable, they were also viewed as less motivated, less resistant to influence, and less dependable than extrapunitive SPs. The dependability rating was not as stable as the others; it was based on a single item, whereas other trait ratings were derived from four items. In terms of differences of means, *Ss*' impressions of competence did not seem to be influenced by SP's punitiveness.

Ratings of punitive traits (scaled from self- through nonpunitiveness to ex-

trapunitiveness) correlated with the experimental treatments in both settings. This relationship was examined further in the speaker-audience experiment by correlating ratings of punitiveness (adjusted for pretreatment ratings) with those obtained for each of the other trait clusters. The resulting r's as given in Table 2 verified the mean differences and corresponded to the impression profile previously noted. An additional finding was that there was a slight but

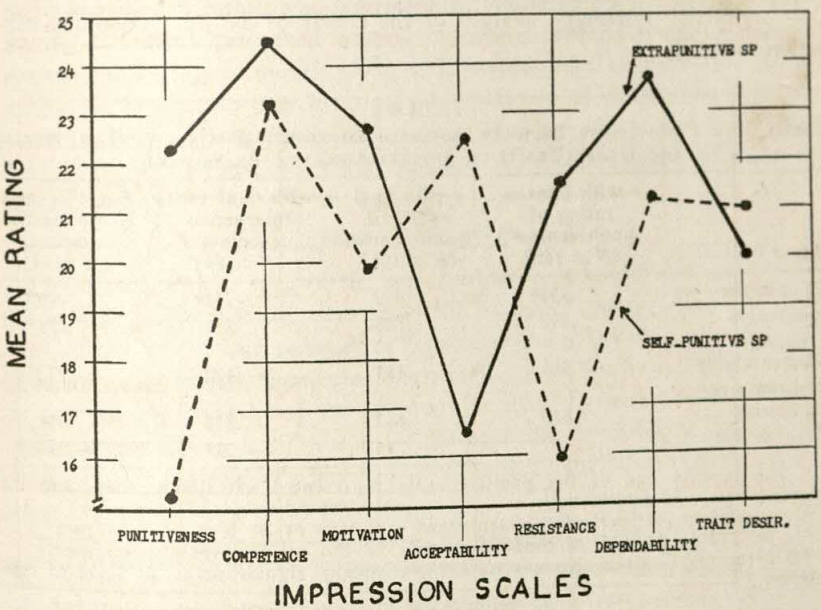

FIGURE 2

IMPRESSION PROFILES FOR SELF-PUNITIVE AND EXTRAPUNITIVE SPEAKERS

significant tendency among *S*s to connect ratings of extrapunitiveness with impressions of competence ($r = .154$, p value less than .05).

Following the final neutral presentation in the speaker-audience experiment, *S*s tended generally to shift towards their initial personality ratings. This change was most noticeable on traits of dependability, competence, and motivation as indicated by nonsignificant mean differences in final ratings in Table 1 and significant changes in r's in Table 2. The effects of punitiveness on ratings of acceptability and resistance also diminished (interim compared with final ratings; significant decrease in r's) but significant mean differences did carry over from interim to final measures (p value less than .01 for acceptability and less than .025 for resistance in final ratings).

2. *Impression Ratings and Conditions of Ss-SP Interaction*

In the group discussions, expression of *Ss*' hostility toward SP was relatively uncontrolled and, as a consequence, its specific effects could not be separated statistically in the final impression ratings. Express provision, however, was made for controlling *Ss*' verbal aggression against SP in the speaker-audience experiment. SP read *Ss*' criticisms in one condition and did not in the other, thus permitting systematic analysis of the effects of *Ss*' interaction-noninteraction with SP.

TABLE 2

CORRELATION COEFFICIENTS BETWEEN ADJUSTED IMPRESSION RATINGS OF PUNITIVENESS AND OTHER TRAITS IN SPEAKER-AUDIENCE EXPERIMENT

Rated trait	r with interim rating of punitiveness[a] ($N = 168$)	r with final rating of punitiveness ($N = 168$)	r with final rating of punitiveness: Interaction subclass ($N = 84$)	r with final rating of punitiveness: Noninteraction subclass ($N = 84$)
Competence	.154[b]	.079	.277[c]	.005[d]
Motivation	.340	.123	.257	.078[d]
Personal acceptability	—.601	—.483	—.422	—.732[d]
Resistance to influence	.619	.462	.456	.459
Dependability	.167	—.214	—.237	—.214

[a] The positive end of the punitive scale represented extrapunitiveness and the negative side, self-punitiveness.
[b] $r = .145$ at .05 level of confidence and $r = .190$ at .01 level of confidence.
[c] $r = .216$ at .05 level of confidence and $r = .281$ at .01 level of confidence.
[d] Differences between subclass r's are statistically significant at .01 level of confidence.

Although all mean impression ratings, including the trait of resistance, were higher for the condition of interaction (*Ss* permitted verbal redress), none was significantly different from mean ratings obtained with noninteraction (*Ss*' criticisms withheld from SP). The interrelationship hypothesized between punitiveness and conditions wherein *Ss* were allowed retribution was not evident from F ratios (derived from final ratings adjusted for initial scores; p values comparing subclass means of interaction-noninteraction were all above .05). However, examination of r's in Table 2 indicated significantly higher relationships between punitiveness and traits of competence and motivation when *Ss*' criticisms were routed to SP (interaction subclass) than when they were not (noninteraction subclass). By use of Fisher's z transformation, differences in r's were significant at the .01 level of confidence. Thus SPs rated as relatively high in extrapunitiveness (or low in self-punitiveness) tended to

be rated consistently as more competent and higher in motivation when they read *Ss*' criticisms than when they did not.

A significant finding also applied to the trait of acceptability (difference of *r*'s significant at .01 level of confidence). SPs rated as high extrapunitive (or low self-punitive) were viewed more consistently as unacceptable when they failed to apprise themselves of *Ss*' criticisms. Thus with ratings of punitiveness as a criterion rather than the experimental treatments *per se*, the opportunity for *Ss* to communicate their critical reactions directly to SP appeared to modify their ratings of punitive SPs. In this sense, findings supported the prediction that reciprocal criticism would be relatively more effective in causing *Ss* to ascribe positive traits to extrapunitive than to self-punitive SPs. No reliable differences on this count were disclosed for rated traits of resistance and dependability.

3. *Questionnaire Responses*[3]

Questionnaire data verified the fact that *Ss* recognized the punitiveness of SP in both studies. Of the total 64 in the discussion groups, 50 *Ss* or 83 per cent ranked the stimulus member as "most disturbing" to the group and "most peculiar" in discussion comments. The remaining 14 *Ss* showed more tendency to overlook the remarks of the self-punitive than the extrapunitive SP (chi square equals 3.80, $p = .05$ for 1 df). In peer ratings of discussion leadership both types of punitive SPs were assigned bottom rankings in the majority of cases (42 out of 64 *Ss* or 66 per cent).

In the speaker-audience experiment, 55 per cent of the total number of *Ss* in response to open-ended questions explicitly commented on SP's punitive remarks. Percentages were equivalent for conditions of self- and extrapunitiveness. At the end of the procedure, a significantly larger number of *Ss* noted that SP had been influenced by his audience when he read *Ss*' criticisms than when they were withheld (chi square equals 5.03, p value less than .05 for 1 df).

Although the open-ended questions were primarily worded to validate experimental operations, responses to them were further analyzed for indications of intervening effects postulated in the formulation of hypotheses. Most noticeable was the greater tendency of *Ss* to evaluate the motivation of extrapunitive than self-punitive SPs (chi square equals 12.27, p value less than .01 in Experiment I and chi square equals 3.32, p value less than .10 in Experiment II, both with 1 df). This finding paralleled more frequent expressions of hostility toward extrapunitive SPs and a larger number of favorable refer-

[3] The reliability of these tabulations was not determined inasmuch as content categories did not require rater's interpretation.

ences to self-punitive SPs (chi square equals 15.79, p value less than .01 in Experiment I and chi square equals 8.92, p value less than .02 in Experiment II, both with 2 df). Also evident were *S*s' greater concern with their own self-image and their attempts to deny being influenced by the remarks of extrapunitive in comparison with self-punitive SPs (chi square equals 14.79, p value less than .01 in Experiment I and chi square equals 66.28, p value less than .01 in Experiment II, both with 2 df). These results in combination seemed to suggest that although *S*s were more threatened, they were also more deliberate in forming impressions of extrapunitive than of self-punitive stimulus individuals. The latter SPs appeared to be regarded with more detachment.

D. Discussion

The failure to obtain clear-cut evidence for an overall halo effect, either positive or negative, in impression ratings indicated the need to revise the formulation which led to the hypotheses. The impression profiles established for each of the two types of punitive SPs suggested two possible intervening effects. One such effect and perhaps most pertinent is that punitive behavior on the part of another person and as defined in this investigation evokes value-oriented sentiments in observers. As discussed by Heider (3), a so-called "strong" person may arouse an attitude of respect but not necessarily be liked by others. The extrapunitive speakers and stimulus group members in being rated as more resistant and dependable and higher in motivation seemed to elicit such an orientation. This kind of concern also seemed to be reflected in *S*s' attentiveness to the motivation of the extrapunitive SP in their open-ended questionnaire responses.

In comparison with extrapunitive individuals, those who were self-punitive may very well have called forth sentiments which Heider has associated with a "weak" person. Such individuals are perceived as persons who are to be pitied, who need sympathy, who may be likeable but are not to be respected. These sentiments seemed to be represented by the relatively higher rating of self-punitive SPs on acceptability (considerate of others, warm person, friendly, and likeable). This trait rating was perhaps the only one that could have been instrumental in expressing such positive values toward "weak" individuals. Also noted was that among the number of expressions of affection for self-punitive SPs, *S*s commonly extended pity or sympathy; e.g., "She didn't need to feel so bad" or "He didn't need to be so self-conscious—we're all students too."

A limitation on the interpretation of results was the absence of control data for nonpunitive SPs. It could be argued that either impression profile is

applicable to individuals who behave in neutral ways or ways which are ego-satisfying to observers. This possibility, however, was ruled out by means of a follow-up investigation (4) which employed similar punitive speeches and the requisite nonpunitive lecture (speakers were tape-recorded). The impression profiles of the "strong" extrapunitive and the "weak" self-punitive SP were again obtained and were differentiated from the profile ascribed to nonpunitive SPs. Findings for the latter condition, contrary to the former ones, appeared to reflect a overall halo effect.

Another possible intervening effect was that impression ratings were expressions of subjects' ambivalence towards SPs. Such an effect was commonly implied in *Ss*' open-ended evaluations. Comments were to the effect, for example, that the speaker or stimulus group member had good things to say but said them poorly. Approximately two-thirds of the total number of responses in the speaker-audience study could be so characterized. The original theoretical formulation of the relationships between the SP and the observer with reference to punitiveness did not allow for the presence of ambivalent tendencies. Impression ratings were assumed to be unitary (halo effect) and induced by a single strain for balance with the harm or benefit imputed by the observer to the SP. Such, however, did not prove to be the case.

In the absence of dependable evidence for particular balancing factors, further explanation is necessarily speculative. As suggested again, however, by *Ss*' open-ended responses (especially in their hostile references to the extrapunitive SP), a single two-way induction principle in relating observer and SP seems oversimplified. When the extrapunitive speaker derided his listeners for weaknesses, he possibly implied his own personal strengths or superior power. This image as being valid and belonging to the SP was acceptable to *Ss*. Speakers, for example, were upperclassmen and were given reputations for their pleasing physical appearance, denoting superior status. Thus *Ss* were caught between disapproval of a lowered self-image of themselves, as verbalized by the extrapunitive SP, and acceptance of superior power of the speaker as implied in his hostile attack on others. By rating the SP as motivated, resistant and dependable, *Ss* were able to express positive value of his strengths. By denying him ratings of likeability, *Ss* were in effect retaliating for the speaker's devaluation of his listeners.

A reverse kind of reasoning seemed applicable in the case of self-punitive SPs. In their self-debasement, they were perhaps interpreted as ascribing superiority to observers. Consequently, observers in preparing impression ratings found themselves approving the self-superiority imputed to them by the SPs, but disapproving the speaker's own expressions of self-disparagement.

The need for further investigation is indicated wherein observers' interpretations of the punitive verbalizations of SPs is explicated.

The ameliorative effect of allowing *S*s to reciprocate the aggression of SPs was not as evident as predicted. The fact that members of discussion groups expressed hostility when confronted with the extrapunitive SP was rather clear from taped recordings. Nine of the 12 SPs specifically noted this reaction in the final questionnaire when describing their feelings about role playing. The impingement on *S*s' self-esteem was probably also counteracted to some degree in the case of self-punitive SPs. Subjects could and did respond in a hostile manner to SP's self-critical remarks. The failure, however, to obtain a more negative halo effect in impression ratings of self- than extrapunitive members stemmed perhaps from the fact that self-persecutory expressions are more allowable from the outstart in small-group discussion of personality than are punitive comments directed against other people.

In the role of classroom lecturer, both self-punitive and extrapunitive comments are supposedly more deviant from the norm than similar comments made in small-group discussion. However, listeners are also able to respond to lecturers as being more impersonal than fellow group members. Thus the harmful implications of SP's punitive behavior to observers could very well have been equivalent in the two situations. Reduction in aggression toward the speaker was possibly accomplished in large part by the very act of *S*s preparing impression ratings and writing criticisms. Thus the procedure in Experiment II of having the speaker make a show of reading and complying with listeners' criticisms lost much, although not all of its expected impact.

E. Summary

*S*s were exposed to punitive stimulus persons either as members of discussion groups ($N = 64$) or as students attending a lecture ($N = 168$). Stimulus persons (SPs) enacted two types of punitive roles. They were either self-punitive or extrapunitive, expressing antagonism either toward themselves or toward other individuals.

Results were similar for the discussion and lecture situations. Extrapunitive SPs were rated as higher in motivation, more resistant, and more dependable but less personally acceptable than self-punitive individuals. Persons in self-punitive roles were ascribed such qualities as being likeable, warm, considerate of others, and friendly. Contrary to hypothesis, a halo impression, either positive or negative, was lacking. The differential impression profiles of self- and extrapunitive persons were interpreted respectively in terms of Heider's theory of value-oriented sentiments toward "weak" and "strong" individuals.

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MENTAL DISORDER AND STATUS: A RESEARCH NOTE*

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A. INTRODUCTION

In previous studies on the relationship between status and the pattern of mental disorder (3, 4, 5, 6), the relative incidence of schizophrenic reactions was found to be higher in a low- than in a high-status group; also the onset of mental illness, as shown by age of first admission to a psychiatric hospital or a diagnostic facility, occurred at an earlier age in the low-status group. The higher incidence of schizophrenic reactions in the low-status group was attributed to the triggering effect of a controlling or hostile environment; the earlier onset of mental illness, to earlier impairment of frustration tolerance stemming from the pervasive restrictions of the social environment.

The differences between high- and low-status groups with respect to the relative incidence of schizophrenia and age of admission to a psychiatric facility were in the predicted direction when status was based on racial membership (i.e., white [high status] and Negro [low status]); on sex (i.e., men [high] and women [low]); on religious affiliation (i.e., Protestant [high] and Catholic [low]); and on subgroup membership within the Protestant denomination (i.e., Episcopalian-Presbyterian [high] and Methodist-Baptist [low]).

A recent study by Malzberg (7)[1] provides data which make it possible to compare Jews and Protestants. In our studies on religious affiliation, the sample of Jewish patients was too small for such comparisons. The Malzberg study also provides a replication of the earlier study on Protestants and Catholics (4).

Protestants have been designated the high-status group; Catholics and Jews, the low-status group. Hollingshead and Redlich (2) and Barber (1) provide evidence for the status designations of Protestants and Catholics. The evidence is less clear for Jews when traditional measures of social status are used; i.e., education and income. However, it is generally known and accepted that Jews do not have the full freedom of movement possessed by Protestants with respect

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[1] The authors are indebted to *Mental Hygiene* for permission to use the data in that journal.

to choice of professions, educational institutions of higher learning, membership in social organizations, housing, etc.

B. Results

Table 1 shows the distribution of mental disorder for 5708 Protestants, 7255 Jews, and 14,654 Roman Catholics; Table 2 shows the median age at first

TABLE 1
PSYCHIATRIC DIAGNOSIS BY RELIGIOUS AFFILIATION

Mental disorder	Protestant (N = 5708) %	Catholic (N = 14,654) %	Jewish (N = 7255) %
With cerebral arteriosclerosis and senile	43	31	27
General paresis and alcoholic	8	9	1
Involutional	9	9	15
Manic-depressive	3	3	8
Dementia praecox	25	31	31
Psychoneurosis	3	4	10
Other	9	12	9

Note: Adapted from original data by Malzberg (7).

TABLE 2
MEDIAN AGE OF FIRST ADMISSION BY MENTAL DISORDER AND RELIGIOUS AFFILIATION

Mental disorder	Protestant N	Protestant Median age	Catholic N	Catholic Median age	Jewish N	Jewish Median age
With cerebral arteriosclerosis and senile	2478	*	4581	*	1955	*
General paresis and alcoholic	427	51.9	1280	51.7	56	57.7
Involutional	509	53.6	1368	53.1	1050	56.2
Manic-depressive	188	44.8	445	29.4	560	33.4
Dementia praecox	1422	26.8	4529	25.6	2252	25.2
Psychoneurosis	183	29.2	643	26.5	740	27.6
Total**	5708	58.5	14654	47.7	7255	49.3

Note: Adapted from original data by Malzberg (7).

* The per cent of patients 65 and older was 89.8 for Protestant, 83.5 for Catholic, and 84.2 for Jewish. The median age could not be computed because the distribution of patients 65 years and older was not shown.

** Total does not equal the sum of the cell frequencies because age data on "Other" diagnoses were not shown.

admission, computed by the authors from the age distribution listed by Malzberg.

Table 1 shows a higher proportion of schizophrenia (dementia praecox) among Jews (31 per cent) and among Catholics (31 per cent) than among Protestants (25 per cent). The finding with respect to Catholics and Protes-

tants is in the same direction as that found in an earlier study (4). Table 2 shows that for all mental disorders, the median age is lower for Jews (49.3) and for Catholics (47.7) than for Protestants (58.5). For specific mental disorders, the median age at admission is lower for Jews than for Protestants in four of the six diagnostic categories, and lower for Catholics than for Protestants in all categories.

C. Conclusions

As was found in several other contexts, the data support the two hypotheses about the relationship between status and mental disorder: (*a*) a low status group will show a greater incidence of extreme aggressive or withdrawal behavior (i.e., the paranoid and other schizophrenic reactions, respectively) than a high-status group; and (*b*) a low-status group will show an earlier onset of mental illness than a high-status group.

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SOCIAL REFERENTS AND SELF-EVALUATION IN EXAMINATIONS*[1]

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A. INTRODUCTION

Several investigators have been concerned with the factors underlying an individual's self-evaluation in a test situation. From these studies, it appears that an individual's level of aspiration, or the score he expects to get on a specific test, is a function of (*a*) an autistic factor, manifesting itself in a distortion of one's self-perception so as to overestimate one's performance (4, 5, 7, 13, 17); (*b*) an experience or practice factor through which one tends to bring his expectancies in line with his actual performance (1, 6, 10, 13, 16, 17); and (*c*) a social comparison factor, where one's self-appraisal is influenced by comparison with others (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15).

Thus, given a new test situation in a relatively unfamiliar area, an individual will have little basis for evaluating his performance, and his own wishes for a high grade should lead him to overestimate his performance. Such overestimation should be especially likely for those students who are relatively unprepared for the examination and who therefore have less of an objective basis for estimating whether their answers are correct. As the individual gains more experience, he will have more of an objective basis for evaluating his performance, and the autistic factor will become less predominant. The accuracy of estimation of performance should therefore increase on successive examinations. It is also assumed that individuals have some general estimation of their performance relative to others. Knowledge of how others performed on the examination should give individuals a basis for evaluating themselves, reducing the autistic factor and substituting for experience in increasing accuracy.

This study is designed to examine these and other factors which might

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affect the manner in which a student evaluates himself in an examination situation. In addition, hypotheses concerning the interaction of two or more of these factors and the affects of these factors on the estimation of other's behavior are considered.

B. Method

A fairly simple method was used to collect the data. At the end of each objective examination in introductory psychology, containing 25 true-false and 46 four-alternative multiple-choice questions, the student found several additional questions.

> The maximum score which you could get in this examination is 71, if you answered all the questions correctly. If you answered questions without reading them, you would still (likely) get . . . a *minimum* score of 24. . . . 1) What is the least score which would be satisfactory to you? 2) What score do you expect to get? 3) What do you think will be the *modal* score of the class? (The grade which the greatest number of people will get.)

We shall call the response to the first question the "minimal goal" score; the second question will give us a "level of expectation" or "expected score"; the third response will be referred to as the "predicted mode." These terms are consistent with those used by Rotter (16). With respect to the last question, it was pointed out orally that, in such a class, the modal score would approximate the average.

The three examinations given during the course of the semester were similar in form and equal in number of items. The same questions were asked after each exam. This procedure was followed for two school years, with the lectures and readings being similar. Examination items, though not repeated, were drawn from the same general sample of questions. In Table 1 it may be seen that the examinations were remarkably similar in difficulty; average differences on a given exam between the two years did not exceed .94 points.

The major difference between the two classes lay in the addition of a social referent. Before answering the self-evaluation questions, students in all three examinations during the second year were told: "On a similar form of this examination last year, the modal score of male premed students was *50*." (In fact, this corresponded to the actual mean of the class, from which male premedical students did not differ significantly.)

The data reported here are based on only those *S*s who took all three of the exams and answered all three of the self-evaluation questions after each exam. Less than five per cent of the students were lost through the establishment of

this criterion. The total sample was comprised of 562 students, 290 in the No Referent condition and 272 in the Referent condition.

C. Results

1. *The Autistic Factor in Self-Evaluation*

As was mentioned above, the autistic factor—a desire to do well in course work—should manifest itself in a distortion of one's self-perception, resulting in an overestimation of performance. This should be particularly true in an ambiguous situation. In Table 1, it may be seen that *Ss* in the No Referent condition overestimated their scores by an average of 6.02 points on the first exam ($t = 12.211$, $p < .001$). In addition, these students felt that they would, on the average, obtain scores that were 6.18 points above what they felt the average score of the class would be ($t = 10.69$, $p < .001$). Further, the average *minimal goal* set by the *Ss* was 3.12 points above what they expected most of the class to get ($t = 5.909$, $p < .001$). Apparently, most students would not be satisfied unless they received scores which were above average.

TABLE 1

Comparison of Referent and No Referent[a] Classes in Terms of Obtained, Expected, Minimal Goal, and Predicted Mode Scores over Three Successive Examinations[b]

	Obtained		Minimal goal		Expected		Predicted mode	
Exam	No referent	Referent	No referent	Referent	No referent	Referent	No referent	Referent
I	50.52	50.35	53.48	48.84	56.54	50.75	50.36	46.48
II	47.91	48.85	52.71	50.30	54.86	50.97	51.53	48.55
III	49.20	50.03	51.68	49.88	52.84	50.40	50.49	48.01

[a] Referent ($N = 272$) class was told on each exam that the modal score for premedical students on that exam was 50. No such information was given to the No Referent class ($N = 290$). The same *Ns* apply to all succeeding tables.

[b] All differences greater than 1.05 points are significant beyond the .05 level.

It is interesting to note that the mean prediction of the class mode made by the *Ss* is quite accurate (the discrepancy between the actual obtained mean and the mean of the predicted mode is only 0.16 points). However, there is no correlation between *S*'s prediction of the class mode and his own obtained score ($r = -.02$).

Autistic distortion is also reflected by the very low but significant correlation between the *S*'s expected and obtained score on the first exam ($r = .20$, $p < .01$) and the very low correlation between *S*'s minimal goal and obtained score on the first exam ($r = .15$, $p < .05$). See Table 2.

Correlations between expected scores and minimal goals, on the other hand, are quite high ($r = .52$, $p < .001$), reflecting the relationship between *S*'s setting of an expected score (i.e., his self-evaluation) and some minimal goal which he sets for himself. It should be recalled that this minimal goal is, on the average, 3.12 points above what *S*s expected most of the class to do. Further, it should be noted that *S*'s expected score and his minimal goal are related, in part, to what he expects the rest of the class to do. The correlation

TABLE 2
CORRELATIONS BETWEEN OBTAINED, EXPECTED, MINIMAL GOAL, AND PREDICTED MODE SCORES ON SUCCESSIVE EXAMINATIONS[a]

Exam	No referent	Referent	No referent	Referent	No referent	Referent
	$r_{O,MG}$		$r_{O,E}$		$r_{O,PM}$	
I	.154	.321	.208	.462	—.021	.002
II	.217	.342	.234	.442	—.034	—.055
III	.378	.368	.426	.423	.150	.073
	$r_{MG,E}$		$r_{MG,PM}$		$r_{E,PM}$	
I	.515	.541	.312	.325	.253	.377
II	.555	.522	.165	.129	.160	.118
III	.683	.551	.181	.278	.170	.206

[a] For the No Referent class, all correlations greater than .113 are significant beyond the .05 level, while those greater than .148 are significant beyond the .01 level. If the difference between two correlations is greater than .167, it is significant beyond the .05 level.

In the Referent class, all correlations greater than .120 are significant beyond the .05 level, while those greater than .159 are significant beyond the .01 level. If the difference between two correlations is greater than .161, the correlations differ significantly beyond the .05 level.

In comparing correlations between the two classes, all differences greater than .165 are significant beyond the .05 level.

between the expected score and the predicted mode = .25, and the correlation between minimal goals and predicted modes = .31. Both correlations are significant beyond the .001 level.

Relatively unprepared students should be more subject to autism in estimating their performance. First, with the possibility of a failing grade being especially threatening, the need for a higher grade would be greater. Secondly, a lack of knowledge of the material would make it more difficult for them to judge whether a particular response to an item was correct. The 72 *S*s scoring in the lower quartile tended to overestimate their scores by 13.27 points, while the 72 *S*s in the upper quartile only overestimated their scores by an average of 2.87 points ($F = 57.342$; $df = 1, 143$; $p < .001$). The correlation between *S*'s obtained score and the discrepancy between his obtained and pre-

dicted score was also high ($r = -.546$, $p < .01$), indicating that the higher the *S*'s score, the smaller was the discrepancy between his obtained and predicted scores. To be sure, such results could be a function of the fact that respondents with lower scores had much more room to predict upward, while the respondents with very high scores could not overestimate their scores by very much. That is, this finding may largely be a regression artifact. An examination of the distributions, however, suggests that the upper limit was not the only explanation for autistic distortion by the lower scoring respondents. These results are consistent with similar findings by Sumner and Johnson (17).

2. *The Experiential or Practice Factor in Self-Evaluation*

The experiential or practice factor should operate to bring *S*'s expectancies in line with his actual performance. Thus, we would expect that over exams, the discrepancy between *S*'s obtained score and his estimated score would decrease. In support of this notion, the discrepancy between these scores decreases from 6.02 points on the first exam to 3.64 points on the third ($F = 20.264$; $df = 2, 578$; $p < .001$). Although *S*'s predictions do become more accurate, the autistic factor is still operating; i.e., 3.64 is significantly different from zero ($t = 9.100$, $p < .001$). Similarly, the correlation between expected and obtained scores increases from .20 to .43 from the first to the third exam. This difference is also significant at less than the .001 level. Thus, consistent with earlier studies (13, 16, 17), experience with the examinations does tend to increase one's ability to predict his score.

It is interesting to note that although the autistic factor still operates to keep *S*'s expectancies above his obtained scores, *S*'s estimation of his score becomes more similar to his predicted class mode.

By the second exam, the average discrepancy between *S*'s estimated score and his predicted class mode drops from 6.18 points above average to 3.33 points and, by the third exam, the discrepancy is reduced to 2.35 points ($F = 20.478$; $df = 2, 578$; $p < .001$). Similarly, the discrepancy between *S*'s minimal goal and what he expects the class average to be drops from 3.12 points above average on the first exam to 1.18 points above average on the second and third exam ($F = 5.598$; $df = 2, 578$; $p < .001$). Thus, minimal goals also become more realistic. The discrepancy between minimal goals and expected scores decreases from 3.06 on Exam I to 1.16 on Exam III ($F = 6.216$; $df = 2, 578$; $p < .001$). The correlation between expected scores and minimal goal scores increases from .52 to .68 on the third exam ($p < .05$), and the minimal goal also becomes more highly correlated with the obtained score (r increases from .15 to .38, $p < .01$).

From Hoppe's early experiment (11), one might conclude that when an individual's past experience with a task was unstable, then he would have more difficulty in evaluating himself. We might then expect that when respondents had shown marked fluctuation in performance between their first and second examination, then they should have more difficulty in evaluating their performance in the third examination. In order to test this hypothesis, we computed the absolute difference between obtained scores on the first two exams and correlated this with the absolute difference between predicted and obtained scores on the third exam. In the No Referent condition, the correlation was significant, though very small ($r = .122$, $p < .05$). With a social basis for comparison, fluctuators would have this additional basis for self-evaluation on the third exam; and in the Referent condition, the correlation was reduced to nonsignificance ($r = .092$, n.s.). Thus, although a significant correlation is obtained in the No Referent condition, it does not appear that fluctuation in performance contributes very much to errors in prediction on later exams.

3. *The Social Comparison Factor in Self-Evaluation*

According to Festinger (6) and others, an *S*'s tendency to use a social referent as a means of self-evaluation should be less when an objective basis of comparison is present than when one is not. That is, a practice effect should reduce *S*'s reliance on a social referent. However, when no objective basis for comparison is available, *S*'s expectations regarding his own behavior should be made with respect to a reference group (1, 2, 4, 5, 6, 10, 13, 17).

That *S*'s reliance on a social referent decreases with practice may be seen by considering the relation between *S*'s estimated score and his prediction of the modal score of the class. On the first exam, prior to any experience, the correlation between *S*'s self-evaluation and his evaluation of others is .25 in the No Referent condition and .38 in the Referent. Both these correlations are significant beyond the .01 level. Once *S* has had some experience, however, the correlation between his self-evaluation and the evaluation of others drops significantly. By the second exam in the No Referent class, the correlation has dropped to .16 and remains at this level through the third exam. For Referent *S*s, the correlation drops to .12 on the second exam and then increases to .21, still significantly below the original level.

S's setting of his minimal goal follows a similar pattern. On the first exam the correlations between the minimal goal and predicted mode are .31 and .32 for the No Referent and Referent classes. By the second exam, the correlations have dropped significantly to .16 and .13 respectively, increasing slightly to

.18 on the third exam in the No Referent class and to .28 on the third exam in the Referent class.

To examine the effect of a reference-group norm when no objective basis of evaluation is available, we can compare the Referent class where students were told that male premedical students attained modal scores of 50 on each examination with the No Referent class. The effect should be particularly strong on the first exam. Looking at Table 1, we can see that Referent students were likely to predict grades close to the supposed premedical-student score. That is, the mean expected scores were not significantly different from 50. The expectations were thus essentially accurate since the reference score was actually close to the usual class mean. The discrepancy between the expected and obtained score on the first exam was 0.40, increased significantly to 2.12 on the second, and dropped to 0.37 points on the third. The discrepancy may be attributed to a change in the mean obtained score between the first and second exam since the expected scores did not differ significantly from one exam to another.

The correlations between expected and obtained scores was .46 on the first examination and continued at approximately the same level for all three examinations. It should be noted that the class with no social referent did not obtain this level of correlation until the third exam.

Thus, although the influence of a social referent tends to decrease when an objective criterion or the experiential factor is present, an accurate social referent prior to any experience seems to replace the effect of experience in determining self-evaluation. This may best be seen in Table 3, which presents the mean absolute differences between expected and obtained scores for each exam during both years. The analysis of variance conducted on the data (Table 3A) indicated that the discrepancy between observed and expected scores was significantly less in the Referent than No Referent classes, indicating that the introduction of the social referent served to increase accuracy ($F = 34.384$; $df = 1, 560$; $p < .001$); there was significantly more accuracy on the third exam than on the first or second, indicating that ability to predict scores increases with practice ($F = 15.743$; $df = 2, 1120$; $p < .001$) and that there was a significant interaction between the two factors ($F = 43.497$; $df = 2, 1120$; $p < .001$). Investigation of the interaction shows that although the No Referent class did improve in predictive ability over exams, the class given the social referent did not. However, the class given the social referent was as accurate in predicting on the first exam as the class without a social referent was on the third.

Thus, to summarize briefly, it appears that ability to predict scores on an

examination situation is increased with practice or increases with an available social referent. Further, it appears that the social referent is capable of replacing the practice effect. Or, to put it slightly differently, the effect of practice is less (concerning accuracy of prediction) when a social referent is present than when it is absent. It should be noted, however, that this may hold only for the special case when the available social referent provides an accurate basis of comparison.

TABLE 3
MEAN ABSOLUTE DIFFERENCES BETWEEN EXPECTED AND OBTAINED SCORES ON SUCCESSIVE EXAMINATIONS[a]

Class	Exam I	Exam II	Exam III
No referent	8.34	8.58	5.86
Referent	6.18	6.13	5.76

[a] Analysis of variance indicates that there is a significant decrease in differences over exams ($F = 15.473$; $df = 2, 1120$; $p < .001$); that Referent *S*s are more accurate than those No Referent ($F = 34.384$; $df = 1, 560$; $p < .001$); and that there is a significant exam by class interaction ($F = 43.497$; $df = 2, 1120$; $p < .001$).

TABLE 3A
ANALYSIS OF VARIANCE FOR TABLE 3

Source	*df*	*SS*	*MS*	*F*	*p*
Between *S*s	561	17991.45			
Class	1	1040.76	1040.76	34.384	.001
Error (b)	560	16950.67	30.27		
Within *S*s	1124	34084.72			
Tests	2	886.07	443.04	15.743	.001
Class × Test	2	2392.78	1196.39	43.497	.001
Error (w)	1120	30805.87	27.51		
Total	1685	52,076.17			

4. *Estimations of the Performance of Others*

Although considerable evidence has demonstrated that an individual's expectations with respect to his own behavior are made with respect to a reference group, we were interested in determining whether an available social referent would also influence *S*'s estimation of the behavior of others. In Table 1, the mean predicted mode for all *S*s on all exams in both conditions may be seen. The analysis of variance performed on the data indicates that the mean predicted mode for the student's class as a whole is significantly reduced when he is told that medical students had scored 50 ($F = 67.94$; $df = 1, 561$; $p < .001$). Thus, availability of a social referent tends to influence the evaluation of others' behavior as well as one's own behavior.

One might expect that persons who have difficulty in evaluating their own

performance might also have difficulty in evaluating others. Operationally, the larger the discrepancy between *S*'s obtained and expected scores, the larger will be the discrepancy between the obtained mean of the class and his prediction of the modal score of the class. Table 4 indicates that over all the examinations, nearly all such correlations are significant at less than the .01 level; however, the magnitude of these correlations is very small.

TABLE 4
CORRELATIONS BETWEEN THE ABSOLUTE DIFFERENCE BETWEEN OBTAINED AND EXPECTED SCORES AND THE ABSOLUTE DIFFERENCE BETWEEN THE ACTUAL CLASS MEAN AND THE PREDICTED

Exam	Mode correlations No referent	Referent
I	.114*	.200**
II	.180**	.168**
III	.154**	.103

* $p < .05$.
** $p < .01$.

5. *Individual Consistencies in Accuracy of Self-Evaluation*

Our data indicate that, particularly when no social referent is available, there is a tendency for individuals to be consistent in their degree of accuracy on successive examinations. We see, in Table 5, that, for No Referent *S*s, the correlation between absolute amount of error of prediction on the first and second exam is .260; the corresponding correlation between the second and third exam is .333. Both correlations are significant at less than the .001 level. For

TABLE 5
CORRELATIONS BETWEEN ERRORS IN PREDICTION ON SUCCESSIVE EXAMINATIONS

Correlations between errors	No referent	Referent
Exam I *vs.* Exam II	.260*	.013
Exam II *vs.* Exam III	.333*	.244**

* $p < .01$.
** $p < .001$.
Note: By error is meant absolute difference between obtained score and expected score.

the Referent *S*s, there is no correlation between accuracy on the first exam and second exam ($r = .013$), but a significant correlation in accuracy between the second and third exam ($r = .244$, $p < .001$). It appears that the introduction of a reference norm somehow affected the general consistency patterns in self-evaluation.

D. Summary

In this study, we applied some of the principles growing out of level of aspiration and social comparison theories to the prediction of performance on examinations. Students in two introductory courses in psychology were asked after each of three examinations to estimate (*a*) what score they would obtain on that examination, (*b*) their minimal goal (the lowest score with which they would be satisfied), and (*c*) the average score obtained by students in that class. Data from 562 respondents were analyzed to determine the bases for self-evaluation. Before making their estimates on each of the exams, 272 students in a "Referent" condition were given the average score of male premedical students on a similar exam. The remaining 290 respondents in the other class were given no social referent. With no social referent, and no experience on the first examination, correlation between predicted and obtained scores is very low ($r = .21$). In the No Referent condition, the correlation between predicted and obtained scores increases significantly on each examination, reaching .42 on the third examination. The average amount of error in prediction also diminishes. Similar results, though to a lesser degree, were obtained for minimal goal. Thus, it appears that experiential factors do affect self-evaluation on examinations. As a sidelight, a slight, though significant, correlation obtained between amount of fluctuation on the first two examinations and accuracy of prediction on the third examination. In general, where errors were made, they were especially likely to be affected by autistic factors—there was a general tendency to overestimate scores. Such overestimations were especially common among those students who in fact performed poorly. The influence of autistic factors was also reduced on later exams. With the introduction of a social referent, accuracy increased substantially, such that errors and correlations between predicted and obtained scores on the first exams were as high in the Referent condition as they had been in the third exam for the No Referent *S*s. The social referent might then serve as a substitute for experience in self-evaluation. Other evidence indicates that errors in evaluation of self are correlated with errors in evaluation of others. Also, there seems to be a consistency in self-evaluation—there is a correlation between amount of error on one examination and amount of error on later examinations, though such correlations are somewhat less when a social referent is provided.

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PSYCHODYNAMICS AS REFLECTED IN THE LOWENFELD MOSAIC TEST* [1]

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In assessing personality, clinical psychologists select those tests which serve them best in evaluating psychodynamics and ego strength, and in making a diagnosis and possible prognosis. More often than not, the Rorschach, figure drawings, and the Thematic Apperception tests are chosen as the basic material for a test battery, supplemented by such tests as are designated to estimate specific assets or liabilities (e.g., intelligence level, brain damage, aptitudes). Psychologists may also add other projective techniques to their particular list —techniques which they have found especially rewarding for the evaluation of character structure and psychopathology. Among these tests are the sentence-completion and word association procedures, the Bender-Gestalt and the Wechsler Adult Intelligence Scale (both appraised projectively), the Szondi, and the Harrower Most Unpleasant Concept.

A few psychologists and psychiatrists have made use of the Lowenfeld Mosaic as an aid in diagnosis (13, 14), as a test for organicity (10), for assessing ego strength (14), and for comparing developmental levels—both chronological (11, 12) and mental (9). Lowenfeld (6) herself has employed the Mosaic in a variety of ways for exploring cultural variables, group differences, and psychopathological categories.[2]

It is probably correct, as Levin (5) has shown, that the Mosaic given alone is not a valid tool for making a diagnosis. I should rather say "may not be valid," for certainly in many instances the Mosaic production has been shown to be valuable in assessing schizophrenia—particularly in estimating ego strength and outcome prediction (14). I have found the Mosaic useful as a supplement to other tests, especially the Rorschach, in helping to understand a patient's psychodynamics and in suggesting ways in which he is moving intrapsychically; namely, towards greater integration towards decompensation of defenses, or into a more complete breakdown. Thus, the test may assist in

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[1] A part of this paper was presented at the Mexican Psychoanalytic Institute and at the National University of Mexico in August, 1960.

[2] A review of the bibliography on the Mosaic Test up through 1956 may be found in Dorken (3).

the predictive value, or the effects, of psychotherapy. In other words, it may not only supplement but also complement the Rorschach (or other techniques) in indicating both the instinctual needs of a patient, as well as his ego defenses, their quality, strength, and direction. This test does so by nonverbal means supplemented by the patient's verbal associations to his productions.

It is my plan in this paper to present various Mosaic productions and highlight the ways in which these may be interpreted psychodynamically.[3] For purposes of ordering the data, I shall divide the material into the following topics: (*a*) a variety of schizophrenic manifestations, (*b*) depression, (*c*) repetition of the Mosaic and changes in the course of psychotherapy, (*d*) latent communications, and (*e*) color and form employed symbolically.

A. A Variety of Schizophrenic Manifestations

In her book on *Ego Structure in Paranoid Schizophrenia,* Zucker (14) shows how the strength and weaknesses of ego boundaries are reflected in the Rorschach, figure drawings, and Mosaic patterns. The Mosaic, in particular, can reveal breakdown of ego boundaries and inability to cope with situations requiring some organizing and structuring. I should like here to present two cases of my own—both paranoid schizophrenics—one of whom was able to remain ambulatory, while the other had to be hospitalized.

The first, whom we shall call "Harry," was a 22-year-old student who could not keep up with his college work and was unable to adjust to his marriage of one year. He became hallucinatory and felt persecuted. His Mosaic was limited to black and white, using the five shapes. There was no apparent organization, although the patient made an attempt to put a few pieces together in a haphazard manner with uneven spaces between the stones.[4] Harry called the pattern a mess, and said he felt like breaking it up. He also remarked, on looking at the pattern, "I am a nobody." Thus, he took a schizoid withdrawal position but, in addition, was trying in some way to defend himself against annihilation (breaking up the mess of "emptiness"). The use of so much white with no other colors is likely to reflect the empty feeling of schizophrenia, while the black is suggestive of a depressive defense. Two days after making this pattern, the patient had to be hospitalized, as he became disoriented, called the therapist his mother whose milk ran into his body by means of electric wires, lay on the couch, and said he did not exist.

[3] Wherever possible, I shall present two Mosaics either of the same person on different occasions or of two individuals with similar problems or diagnoses, so that variations in handling this nonverbal material may be compared. The cases I have selected could be duplicated a number of times, but I chose the Mosaic patterns which I felt would best illustrate the topics I have planned to cover.

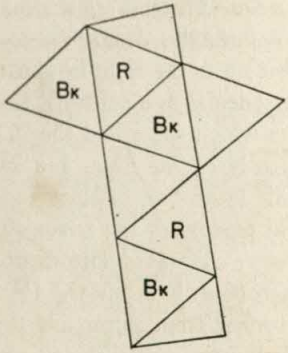
[4] This Mosaic pattern is reproduced in Zucker's book (14, p. 156).

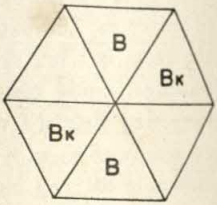
The other case, whom we shall call "Jane," a girl of 20, also a student, never did retreat into an open psychotic break. With some supportive therapy, separation from a characterologically paranoid mother, and emotional support from a healthy young man who married her, this girl made a marginally successful adjustment in marriage. Jane was given the Mosaic test prior to therapy. She worked very slowly, changing stones fairly often and rearranging patterns (not the quick, impulsive performance of Harry). Her first design was a square about four by four inches, done in red and green diamonds and the smaller equilateral triangles. This pattern she called a "poinsetta" (flower in center of the square). At first, this design was placed in the middle of the paper, but later she pushed it up to the right-hand corner, saying that "Christmas gaiety" was not for her (denial as a defense). She then proceeded to make a design in black and white which she called the "Christian Cross" (death). The cross was made diagonally on the paper and appeared as though falling over, thus indicating not only by the use of black and white, but also the slant of the cross, her withdrawal tendencies and feelings of helplessness. However, the fact that her designs were organized into distinct patterns and that she somehow could contain aggression, both inward (black) and outward (red), suggested that she would benefit from supportive therapy and not act out in resistance to therapy in a destructive way. This turned out to be the case. Jane was able to keep some equilibrium and balance, holding primary processes as well as superego forces in check.

In another comparison of ambulatory schizophrenics, the Mosaic patterns reflect the movement of the defenses of the patients after several years of psychotherapy (individual and group). These two patients—a male of 30, Sam; and a woman of 31, Helen—were tested in order to ascertain whether or not they seemed ready to terminate therapy. In the earlier stages of therapy, these patients had done considerable acting out in resistance to the therapist—such as having automobile accidents, changing jobs suddenly, moving around the country, etc.

Sam produced two patterns (Figure 1) with the stones at the left and the right of the paper, using only the larger triangles (except for one scalene triangle). His figure on the left was an elongated one; on the right, a hexagon. Black and white predominate, but he adds two red triangles to the left pattern; two blue to the right one. Sam's spontaneous comments to the patterns were: "I was just making designs and, I'll be darned, I put the blood on the wrong sex [on the penis]; it should have been on that female one [hexagon]. But what's the difference?" Thus, the patterns and his associations to them tell us something of Sam's sexual confusion, as well as his difficulties in handling aggression and his castration fears (blood on penis).

The Mosaic of Helen (Figure 2) appears more scattered and less well organized than that of Sam's. Helen said she was trying to form a design with no conscious thought except to tell herself: "I mustn't use black" (denial as a defense). Helen found the task difficult, but she seemed to be trying to work out some interpersonal problem; for, as she worked, she began associating: "I feel this is *me* on the left—the red and yellow. I am active and restless; and *that* is my husband—the green and blue [on right]. I feel," Helen added, "we





LEGEND

BLACK	Bk
WHITE	
YELLOW	Y
RED	R
BLUE	B
GREEN	G

FIGURE 1
SAM—"MALE AND FEMALE"

are together at the bottom, but there is something between us up here." On a sentence-completion test, this patient wrote: "All would be well if my husband would go into therapy." What the patient appeared to be expressing was that she and her husband did succeed in having some satisfactory sex relations (the bottom part of the body), but that at the top (the head) they were miles apart. The husband was described by Helen's therapist as a cold, intellectual professor who could not understand the moods, feelings, and interests of his wife.

Although Helen's pattern is somewhat chaotic in appearance, she did seem

to be working hard at relating to another person, expressing feelings (red and yellow), and holding depressive and schizoid features in check, although white was employed probably to indicate the blankness between her husband and herself. It was recommended that this patient might try to get along without therapy if her husband did accept it. It was also advised that Sam continue in therapy in order to work out some more his sexual identification and his handling of his aggression, which was no doubt a defense against his castration fears (penis with blood).

Interestingly enough, these two patients gave some similar Rorschach responses. Since we felt they were so differentiated on the Mosaic, it is of interest

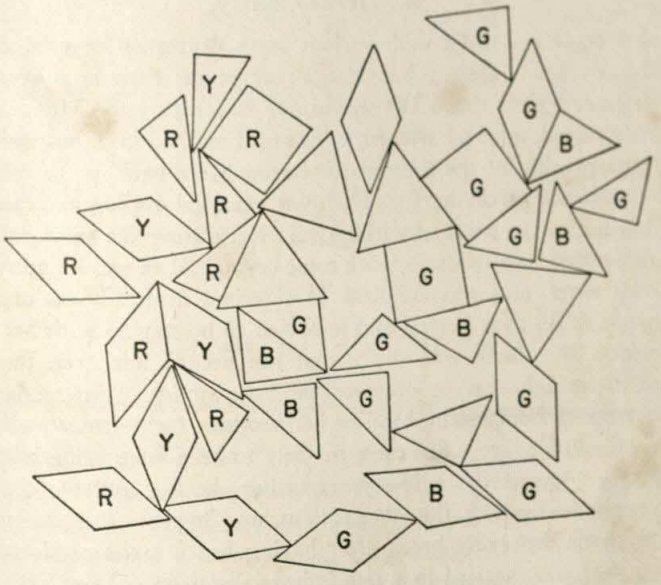


FIGURE 2
HELEN—"MY HUSBAND AND ME"

to see a few of their similarities on Card II. Sam's responses to this Rorschach card confirm his sex difficulties. He said: "Red is always sexual—it is menstruation. I see two men with little red hats and black coats engaged in some sort of dance. Their hats are threatening [red], and so is menstrual blood [at bottom], but they are gay; black to me is gay" (reaction formation). He reversed the card and saw the red as very vaginal, and the opening (at bottom) as disturbing because the "penis is coming out instead of going in [to vagina]

—coming out as if injured." He added: "There's something very nice but also pain; vagina is pleasure, but pain if you penetrated it [castration] just like two men [described above] have happiness [black] and pain [red]."

Helen perceived menstrual blood, also, in Card II, and a female pelvis; but, in addition, she saw "circus clowns or firemen [black and red] doing some sort of dance like patty cake." She separated her menstruation concept from the men and had the men doing something together that was playful rather than sadomasochistic, although the concept of firemen may indicate a need to quench angry impulses which are sublimated or perhaps turned into a reaction-formation as "clowns—patty cake."

B. Depression

Our next topic has to do with various ways depression may be expressed in the Mosaic—how different individuals may reveal their impulses, as well as their defenses against them. We should like to compare the Mosaic patterns of two middle-aged, married women, both of whom had been hospitalized for suicidal attempts, but at the time of the testing were back in the community about to commence psychotherapy. Each one reported feeling exceedingly depressed, but not to the point of withdrawal; for, during the testing, they both showed restlessness, talkativeness, with some crying. Alice was 48 years of age, had married twice, and was childless. Her second husband was of a lower socioeconomic status than herself and appeared to be staying with her because of her money. But Alice was aware that she needed him even though she attempted to leave by having other casual love affairs. Alice received little emotional support from her husband or her brothers (who had repudiated her after her second marriage). She came for help to keep from being hospitalized a second time. Apparently, a few years earlier she had suffered a psychotic depressive episode. Beatrice, the other patient, was 36 years of age, in remission from a psychotic depressive break after having had a series of electric shock treatments. She was married to a rich industrialist who did not love her and was openly living with another woman. The patient had a 13-year-old boy, but felt unable to look after him. The husband supported Beatrice financially. Unlike the brothers of Alice, Beatrice's one brother was concerned about her and gave her emotional support.

Alice made a Mosaic pattern—not very elaborate but with some structuring (Figure 3); it was compact and centered on the page. She employed all colors but black, which she consciously avoided, saying, "No black," thus using denial of depression with an attempt to employ reaction formation as a defense. She said: "It could be a tower, a battlement, but I want to make a beautiful

stained-glass window." Apparently, her defense was brittle (glass), although she felt the need to protect herself (battlement).

On the other hand, the other patient, Beatrice, made a much more structured and expansive design (Figure 4). Although she used only red and black colors (aggressive and depressive representations), she showed that she was able to mobilize aggression outward, for the pattern has many red stones (diamonds) pointing outward. Beatrice seemed concerned about whether her im-

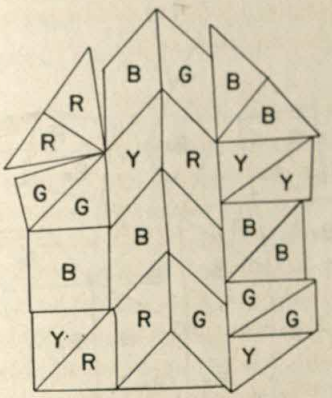


FIGURE 3
ALICE—"TOWER OR STAINED GLASS WINDOW"

pulses (against others or against herself) could be contained, for she repeatedly looked down at the black floor of the testing room and said, "I'd like to put this design right into this floor."

Both patients reported daydreaming about having babies; also, they perceived infants in the Rorschach blots. Alice, however, used denial as a defense much more than did Beatrice (saying several times, "It could not be this" or "It is not that"). She seemed rather helpless, relying on others to support and look after her. Beatrice also was very dependent, but she brought out more direct aggression on the Rorschach. She saw "blood, angry people." Both patients indicated people on edges of cliffs or precipices in the inkblots (suicidal); and both gave very similar responses to Card II, showing their oral dependent and oral aggressive needs, characteristic of the manic-depressive personality structure. Alice saw: "Caricature of two men having a drink and talking in a cafe; they have faces of beasts, hands tied and bound; getting together over a drink or a deal—not very nice people." She protected herself by having the men have their hands bound. Beatrice was a little freer. She said

of Card II: "They are sitting at a counter clinking glasses like 'Here's to us,' sticking their tongues out—maybe thirsty—strings of their hoods tied—they look deformed." Her freedom, however, took on a manic quality—a reaction formation against her deep-seated and all-pervasive depression.

In some ways, Alice seemed better able to cope with situations because she

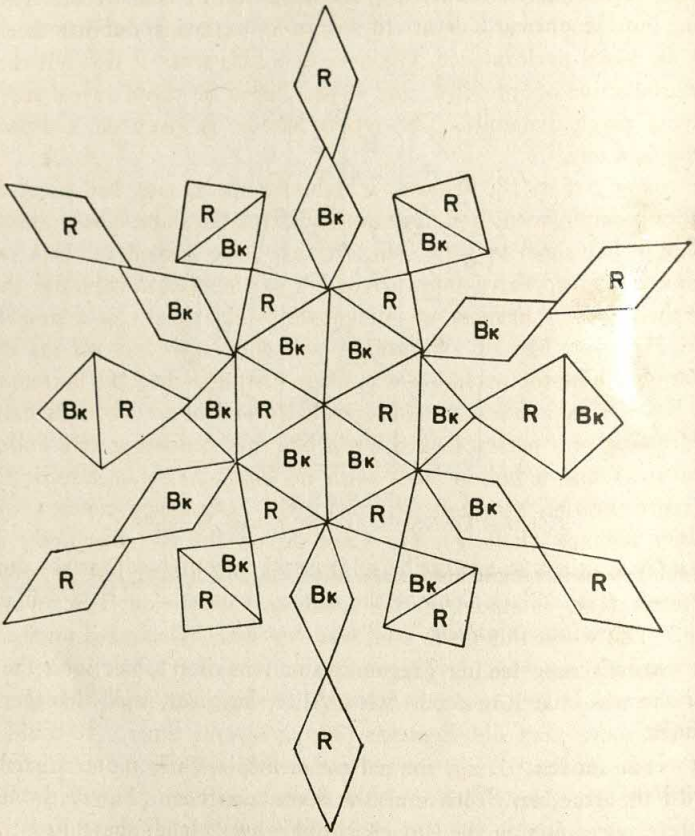


FIGURE 4
BEATRICE—"DESIGN"

used a variety of colors on the Mosaic and tried to deny her depression. But her defenses appeared brittle (a battlement that turns into stained-glass window), and the form of her pattern is not as well structured as is that of Beatrice's. The latter patient made a more elaborate and clear-cut form, using two colors (red and black) in an organized way. Her aggressive impulses

were nearer the surface, but she was afraid of them (wanting to put the design in the floor).

C. Repetition of the Mosaic and Changes in Psychotherapy

1. *Repetition in the Test Period*

During initial diagnostic testing, a comparison of two Mosaic patterns of the same individual may give us clues as to his versatility: ability to change or modify an initial performance. We have done this when it was felt the patient was unproductive or inhibited, and it was hoped he could reveal more of his underlying psychodynamics. The repeat Mosaic is given on a different day from the first one.

One young girl of 18, Frances, a high-school graduate, had great difficulty maintaining employment and forming social relationships. She preferred staying alone in her room to going out. At times, she seemed to blank out for a few minutes and appeared unaware of her surroundings. (She did this twice during the testing.) Frances was diagnosed psychiatrically as a simple schizophrenic. Her first Mosaic (Figure 5) was done entirely with red diamonds and triangles. The top enclosure was made first, and then the bottom one was added. Frances said it was a roof (top half) and house (bottom half). Her figure-drawing of a person looked much like this, consisting of a hollow head (no features) and a hollow body with no limbs. We can surmise that this house representation also reflected this girl's body-image concept, including her empty feelings (hollow). On Card X, on the Rorschach, she saw the usual rabbit-head having a head, ears, and legs, but having lost its body. Frances' greatest fear, as stated on the Sentence Completion Test, was "doing nothing." The worst thing, she said, was "to fight." Using red on the Mosaic indicates some strong feeling (aggression or fear of it), but with the hollow interior she was unable to cope with such feelings. She said, "Mother always knows best."

The second day of testing, the patient seemed slightly more relaxed and at ease with the examiner. This time she made a pattern (Figure 6) at a very simple level—again, a house (poorly constructed); what she called the moon (looking to the examiner more like the sun because of the color and form); and a row of blue diamonds for the sky, and a green one for the grass (all parts were labeled by the patient). This girl probably had some romantic phantasies, for she said, after making the Mosaic: "I am going out with a boy and I am going to wear a green dress." But she volunteered that she never had a date with a boy more than once. The second Mosaic shows a good deal of regression, as does the first (this is an 18-year-old high-school graduate, not a

young child), but it does suggest some attempted relationship to the world and not just feelings about the hollowness of the self, as did the first pattern.

2. *Repetition During the Course of Psychotherapy*

Psychotherapists sometimes employ projective tests in the course of therapy. This may be done to stimulate associations—Bellak, Pasquarelli, and Braverman (2), Harrower (4)—or to evaluate progress or results of therapy—e.g.,

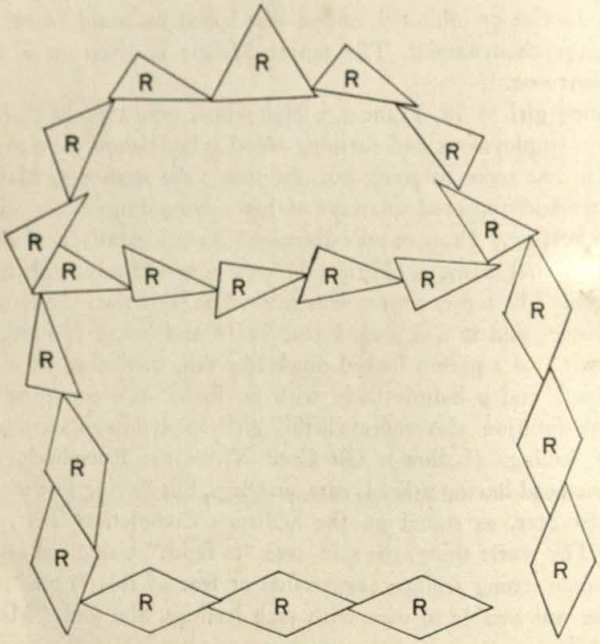


FIGURE 5
FRANCES—"HOUSE"

Lundin (7). I have occasionally given the Mosaic test during therapy, sometimes with a view to breaking through resistance or to evaluate possible changes in psychodynamics that had not as yet been reflected verbally.

One patient, a schizoid with depressive features, was given his first test after a year of therapy.[5] He was a commercial photographer who came to therapy because he said people had complained about his work as being cold and remote. He assumed he must be like that himself, but he could not know this since,

[5] This patient has been described in detail in a paper of mine (1).

he said, he did not feel this way; in fact, he claimed he did not feel anything. At the time of taking the Mosaic, the patient, Bob (a 35-year-old, single male) was also doing some drawing and printing as an avocation. For his first Mosaic (Figure 7), Bob used all colors and shapes, except the color black. He said: "This year, for the first time, I used color in printing Christmas cards." He thus consciously ruled out expressing his depression. In doing the test, Bob

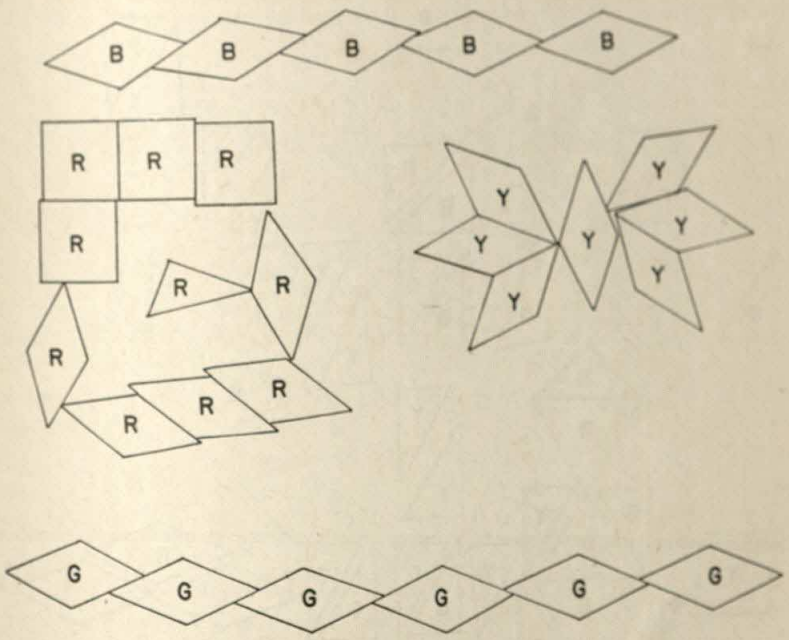


FIGURE 6
FRANCES—"HOUSE, MOON, SKY AND GRASS"

said he felt a pull to the center of the page (green stones), a pull both horizontally and vertically as though he needed to bisect the sheet in two directions (compulsive defense against some obsessional pressures). The patient also had a strong desire to make a pattern on the lower left side. He said that his designs, in general, had a tendency to be placed in this position.[6] Bob thought the blue figure was "trapped down there in a vise," which he associated as a feeling about himself. The therapist believed that this trapped figure also rep-

[6] Machover (8, pp. 89-90) discusses placement of productions on a page—left indicating self-orientation.

resented the patient's fear of castration (the penis caught in a vagina). Blue might have represented his passivity, while the brighter colors and red, surrounding the trapped figure, could possibly have represented the vagina and blood. Earlier in therapy, in describing his circumcision at the age of seven, the patient had used the term "castration," as though this is what he believed

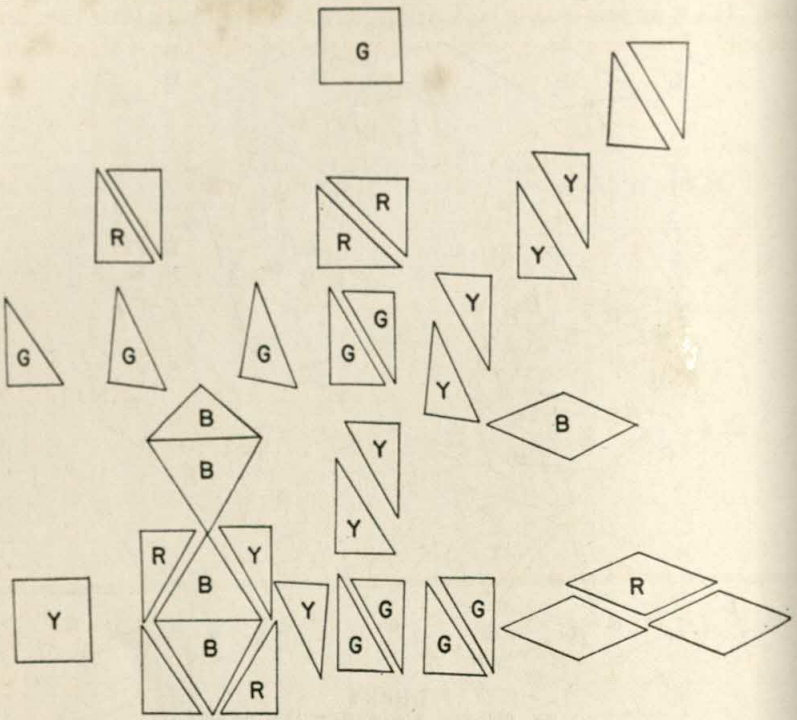


FIGURE 7
BOB, FIRST YEAR IN THERAPY

happened to him. The doctor had recommended the circumcision because Bob's mother had complained about his bed-wetting.

The therapist pointed out that some stones seemed to be moving out from the lower left of the pattern—especially the yellow. The patient associated: "Yes, I'm sort of trying to take flyers out—like trying to be freer with my drawings and getting up courage to buy books and records." The therapist then commented that many of the stones did not touch each other (the patient feared close contacts).

One year later, Bob repeated the Mosaic (Figure 8). As can be seen, there is much more use of red and black, and the design seems more vigorous and freer. Bob said: "It feels good that I can use curves now," and that "I can use white." This time he reported he had been afraid of white before (emptiness) and, as we saw, he had denied black. The patient added that he never could make curves in drawing. "Now, today, I see I could. I'll try; it feels good." His body was usually held rigidly, and he walked with little ease, arms held stiffly down—not free-swinging—especially the right one. (Masturbatory

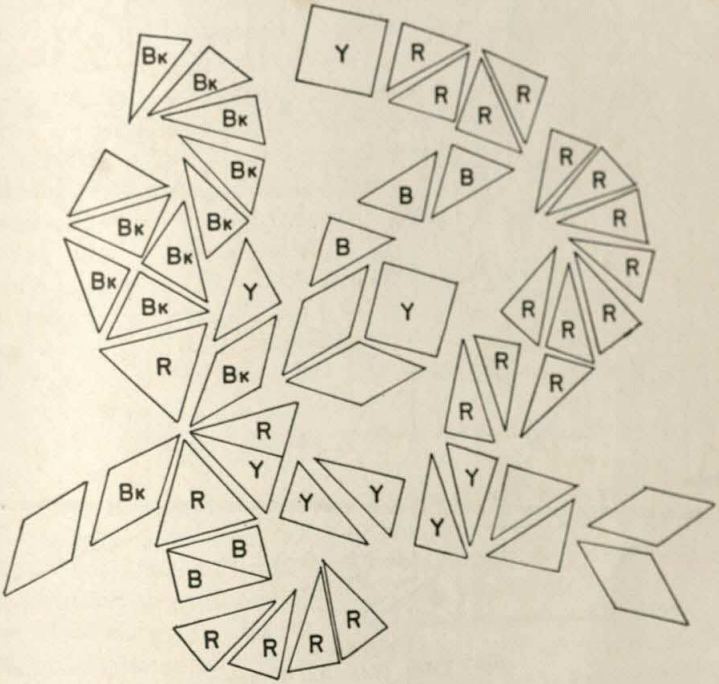


FIGURE 8
BOB, SECOND YEAR IN THERAPY

guilt. Bob was right-handed.) Further associations to this design were: "I feel a lot of forces are surrounding me, and I don't know which ones to use. I am looking for *me*; I have some feeling arrows are coming toward some figure in lower left. All coming, except the black—that is going away" (depression lifting). However, the design indicates the patient had mobilized more aggressive feelings and/or fear of them (red and pointing towards himself) than he did earlier.

A year and a half later in therapy, Bob produced a third Mosaic (Figure 9). The figure he constructed first (red and yellow at center) was no longer down on the left and, this time, it was made with bright colors. The design was called "The Sun," or "Sunburst." He said: "I was thinking of the sun—like the photos of sunsets I took in Spain last summer. I feel this is freer and more confused than my last design—less form and more color [he means yellow and red]. I am totally confused but, gee, I feel something—what I

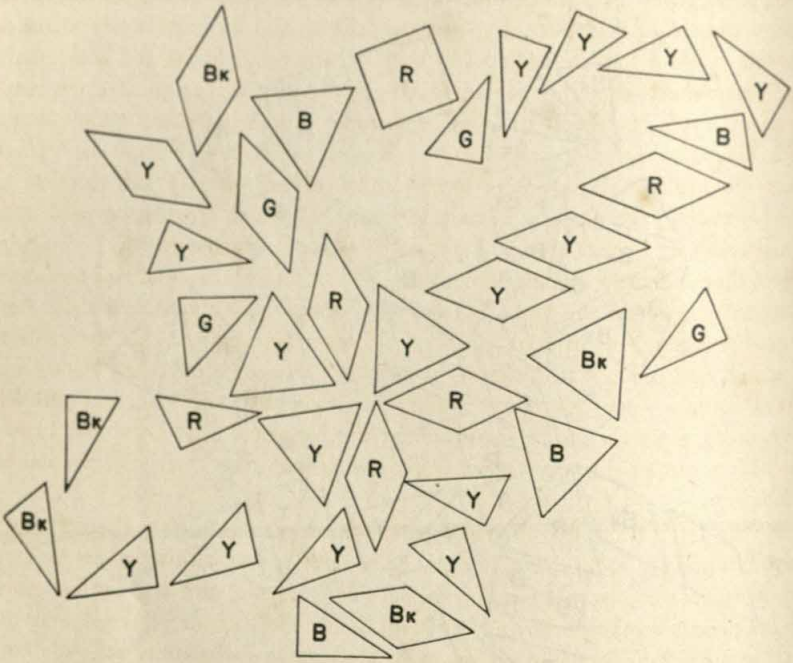


FIGURE 9
BOB, THIRD YEAR IN THERAPY

feel is I want something from people—want to be with them." The patient was moving a little out of a schizoid-depressive position—was allowing some feelings to come through but, as yet, did not know how to relate to others (*note:* no stones touch).

Another example of changes in therapy is where a second Mosaic seems much less well organized than a first one. The patient, an adolescent boy of 14 named Jack, came to therapy because he was doing poorly in private school. His mother had died when he was an infant; he had been raised by an elderly

father and by maids. He had often been neglected; that is, left alone and little interest shown in him. On the other hand, his father periodically took him along on trips and exposed him to a way of life beyond his years, treating him like an adult. When Jack was 13, his father sustained a heart attack as he was driving a car. The car ran into another car and considerable damage was done. The father died a week later, at the age of 79.

One year subsequent to his father's death, Jack came for therapy. He was being brought up by a much older brother and his wife. The sister-in-law appeared somewhat cold but yet seductive. Jack acted very impulsively at times; at night when left alone he would "borrow" the family's car and occasionally a neighbor's, and race down the roads at great speed. During the day, he would frequently ride his bicycle in front of speeding cars to get them to slow down. Jack was also accident-prone and succeeded in hurting himself in various ways—including falling out of a tree and breaking his arm. At the time of this behavior, Jack made a Mosaic (Figure 10) which started out with four hexagons—one at each corner. Diagonally across the whole center, he built an object that ended up looking like a large penis. This, Jack described as "something moving across the paper." As he worked, he talked boastfully about how he was going to "lay girls at a party," although he admitted that he was sort of scared and did not really know what to do. He must have had strong and mixed feelings about his father, and tried to identify with him, but still felt very angry towards him. He said, about the hexagons, that he would like to push them out of the way (possibly representations of the girls he phantasied raping).

A year later, Jack had discontinued his acting-out behavior. He no longer helped himself to night drives in cars. As he said, he was waiting to get his own car at 16. He also stopped riding bicycles dangerously, and said he had given up his phantasies about having sex with girls. The patient reported that the girls in school did not like his sex talk. He became more polite at home (according to his sister-in-law), but still did very badly in school work. He found it very hard to concentrate and felt he was being terribly pressured by the school and at home to do his homework. He forced himself to spend hours trying to study but, as he said, his mind was not on it.

His second Mosaic, as can be seen, is chaotic (Figure 11). Jack started out making a penis-like object, from the lower right towards the upper left, but then felt the need to keep piling on more and more stones. Jack said of his work: "I thought I had a plan, but I have none; I just have a desire to fill up the space." His compulsive defense was at work, but was getting out of hand and was preventing him from being in charge of himself and of acting

spontaneously and creatively; this defense, however, had stopped his more dangerous impulsive and acting-out behavior.

D. Mosaic Patterns as Latent Communications

Mosaic patterns, of course, indicate something about an individual (e.g., that he is coordinated, intelligent, confused, or angry), but there are some patterns that seem to contain special communications of which the patient may or

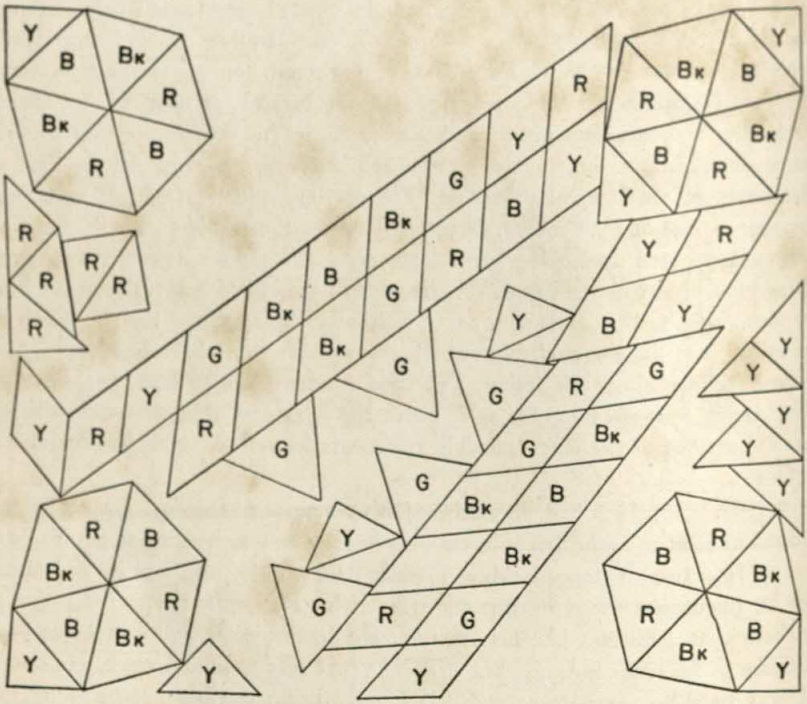


FIGURE 10
Jack, First Year in Therapy

may not be aware. For example, a Mosaic may not tell us anything directly, but suggest that the patient has a "secret" which he is concealing or repressing, but which seems to be seeking an outlet. An example of this is the pattern of Tom—a 35-year-old, single male—an only child, a college graduate, who came to therapy because, he said, he was "goofing off" on his job (salesman), "wasting time, and not using his brains." He had been an alcoholic for eight

years but, after a near-fatal car accident, Tom joined AA. When he appeared for therapy, he had not had a drink in five years. His mother, a Christian Scientist, had committed suicide by hanging when Tom was 15. He lived alone while his father traveled as a salesman.

Tom made the design shown on Figure 12. The center was laid out first and this was then surrounded on three sides with an opening at the top. It

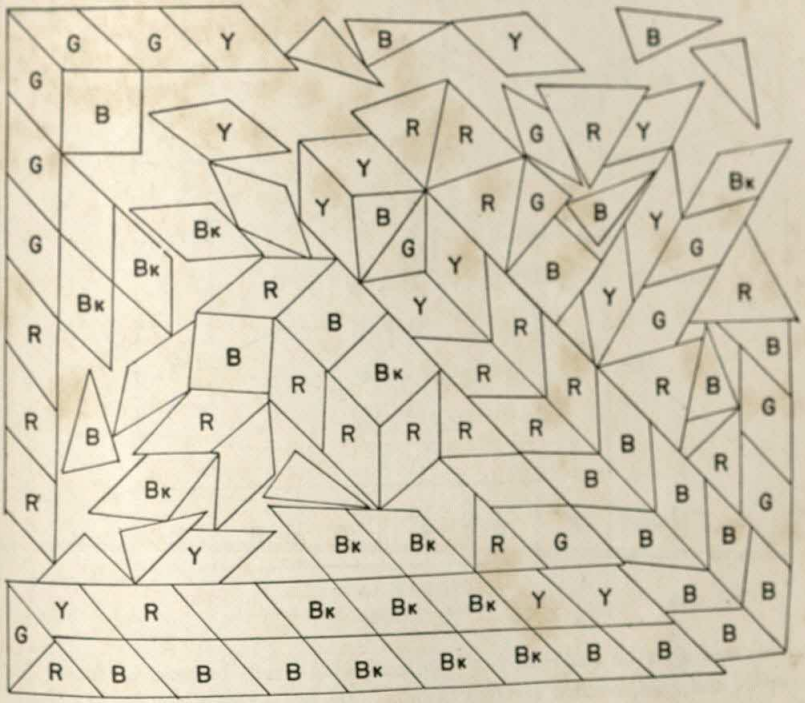


FIGURE 11
JACK, SECOND YEAR IN THERAPY

looks as though he himself felt hemmed in and were trying to get out of the top (possible penis symbol in center). Tom had a strong authority problem which kept him from relating freely and easily to both men and women on a job and in social groups, although with fellow members at AA meetings he felt more secure. Tom described his Mosaic pattern as an "Aztec symbol that has been undeciphered." His message was, so it seemed, that he had a "secret"; that he was an enigmatic person who needed to be figured out

—that something was hidden in him. From this pattern, it was conjectured that his secret was of a sexual nature.

In therapy, it turned out that Tom developed rather strong, compulsive-obsessive defenses in combating his impulses, and at times they immobilized him. He did not act out in therapy, except occasionally by running away from a session by forgetting to come. He was afraid he would reveal something horrible about himself. What finally came up was that his mother had committed

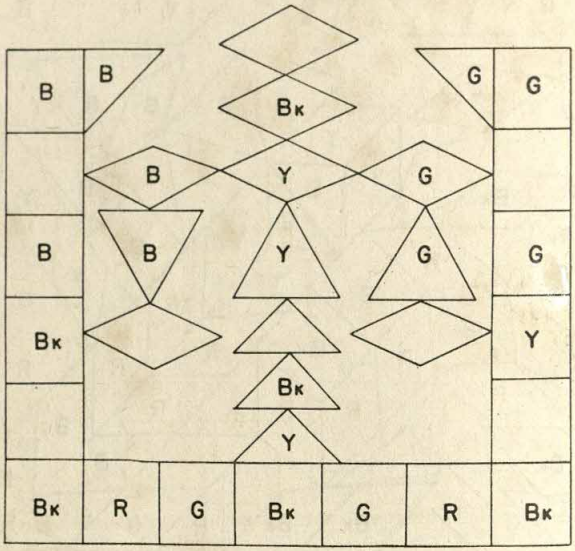


FIGURE 12
TOM—"AZTEC"

suicide and that he had felt both sad and glad—sad, because of losing his mother; and glad, because she had hemmed him in and been such a nag. Also, Tom had been ashamed of masturbation. His "secret" was that he felt that his mother had committed suicide to punish him for masturbating. After understanding his secret, Tom was able to move more easily in the realistic world, in relation to his job and to girls.

Another "secret" was communicated by Teresa, an 18-year-old girl who came for therapy on the recommendation of a male friend who was about 20 years older than herself. This girl had had a baby at 15, had refused to marry the baby's father, and had given the baby out for adoption. She had left home and succeeded in getting through high school by working for a family. Under

the influence of alcohol, Teresa became exceedingly "hysterical," crying and shouting, and demanding that a man (usually a father-figure—an older man) give her a baby. Her Mosaic pattern seemed to represent a person, or at least a torso (Figure 13). Between the two upper green triangles, Teresa had first placed a yellow square which she later took away. Her association to the pattern was: "It's a design, but this red [diamond placed on top of the four center yellow squares] makes something wrong."

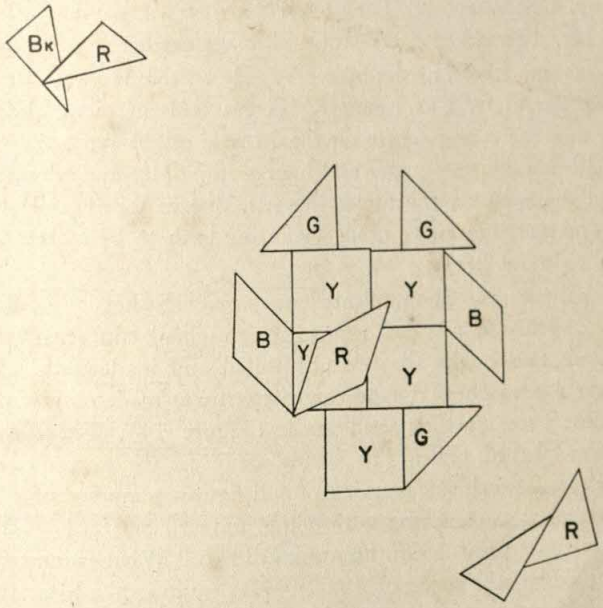


FIGURE 13
TERESA—"DESIGN WITH SOMETHING WRONG"

In the Rorschach, also, this patient cut off heads and limbs of animals and men, thus stressing the torso (as in the Mosaic, where she removed the head). For example, on Card VI, she saw in the Lower D "two somethings [small white ovals] growing inside a big, dark cavity—kind of damp there." Also, in the Rorschach, Card VI, she perceived a blemish in the upper D, as symbolic of "man's attempt to cover up what he has done wrong." Consciously, this girl spoke freely of her experiences, her baby, and his adoption. She said she did not remember her behavior under the influence of alcohol.

During the early stages of therapy, the patient spoke of her various boy-

friends—of their wanting to marry her, and how she would spend various weekends with different ones, saying: "They need me" (meaning, "I need someone to protect me"). Teresa finally came out with one of her "secrets," which was that the father of her own baby had married, and his wife was pregnant. She said that if this girl had a boy (her own child was a boy), she would kill her. In another session, the patient recalled how she had had to look after her younger brother (five years younger), as her father had left home and her mother worked. She consciously resented the mother for giving her this responsibility. Unconsciously, Teresa resented her for having had a boy who superseded her. Teresa had had death wishes against her brother, also.

Other communications, no doubt, were made on the Mosaic, but about these we can only speculate. For example: Teresa had an older and a younger brother, so that the center figure on the Mosaic might represent the mother; the two small side figures—upper and lower—the older and younger brothers; and the red diamond on the figure, herself. She certainly had strong, oral-dependent and anal-aggressive needs (wanting both to be looked after by the mother and to attack her).

Another patient also communicated unconsciously her relationship to her siblings. A 24-year-old married woman (high-school education), Elsa, came for a diagnosis to see why she felt unfulfilled and inadequate, and why she had such severe headaches. Her Mosaic pattern was made only with diamond-shaped stones: green, yellow, and black (Figure 14). There was a large, pointed, arrow-shaped figure (15 stones used) in the center, with a black stone at the top. At each side were two small figures composed of a black and a yellow diamond stone touching with points upward and out. Elsa called her design, "Harlequin print design for a masked ball." What is interesting is that she gave the design the name of a male (Harlequin). She associated nothing else to the design except to say that she wished she could go to dances, have jewels and a Cadillac. Elsa had a wish to be someone she felt she could never be. She reported that she had a twin sister (the second two-piece pattern), and a brother six years younger who was "the apple of her parents' eye" (possibly represented by the large "arrow," a penis-shaped pattern separating the two "sisters" on the Mosaic).

On the Rorschach, Elsa made no use of the color red until on the Inquiry on Card III, she said: "Someone dropped blood on the cards." And on a Sentence Completion, she associated "I hate . . . no one." This patient seemed to be repressing aggressive or hostile impulses, denying hating anyone, but having headaches. She toned down her strong impulses further by making a harmless "Harlequin print" on the Mosaic, although the shape of the large, central,

arrow-like figure suggests a feeling of something big and pointed towering over two smaller identical figures.

E. Color and Form Used Symbolically

Sometimes color is used symbolically by a patient, in a manner that is directly communicated rather than expressed latently. This is likely to occur among schizophrenics who use symbolism freely and have become detached from awareness of their feelings. For example, one young man of 18, James,

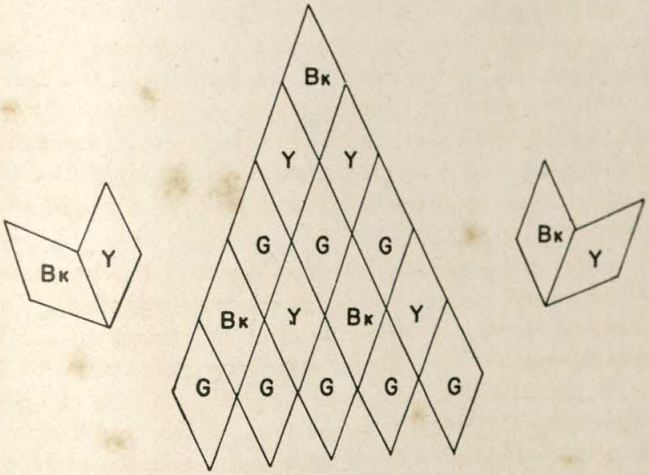


FIGURE 14
Elsa—"Harlequin"

made a larger design, using red and black stones on the left and a smaller blue design on the right (Figure 15).[7] His struggle between aggressive impulses and passivity was represented and expressed directly by the colors. The patient said that the blue represented "Peace," but that he put black over the blue to represent "Death as killing Peace." His left figure, he said, represented "violence" in the red that was giving off "death" (sharp, pointed, black triangles surrounding the red). The one red square in the "Peace" design was described as "a little bit of violence sort of putting the crowning blow on the Peace which is covered with Death." It looked as though this patient were not able to maintain a balance; and that he had, or could, act impulsively in a self-destructive manner.

[7] I am indebted to Henry Werner of the Stevens Institute of Technology for this case and the following one (Dan).

Form may also be used symbolically. For example, a 32-year-old, overtly homosexual male, Dan, was planning to get married, but was having difficulties making a decision. One of his symptoms was stuttering. In taking the Mosaic test, he was very polite and seemed to have a need to please the examiner. He made for his Mosaic what he called a "tiger" (Figure 16), consisting of a very large front-view of the head (white stones predominantly, with

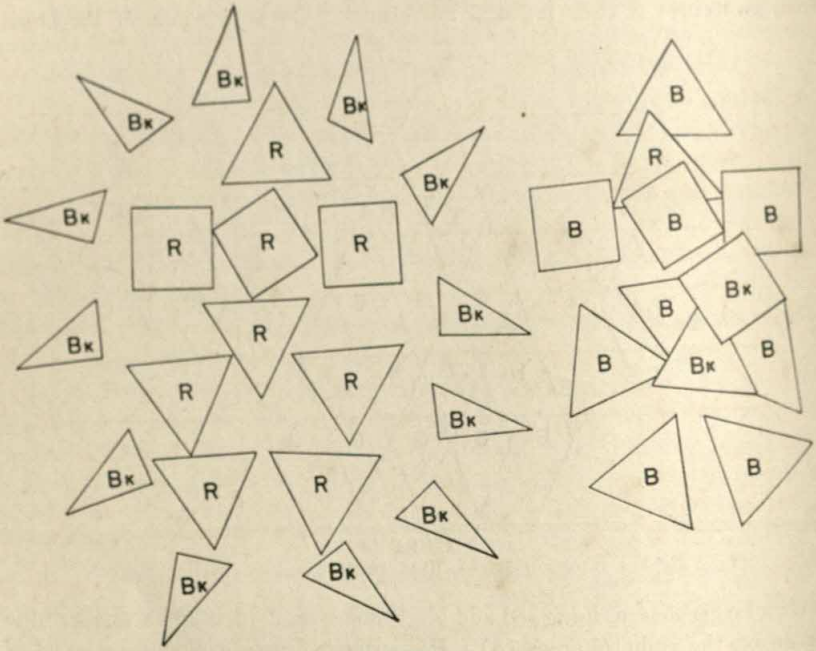


FIGURE 15
JAMES—"VIOLENCE" (LEFT) AND "DEATH KILLING PEACE" (RIGHT)

red eyes, black mouth, red jowl), red body, and tail. He called the pattern a "tiger" or "leopard" lying down (making the beast safe). He said it was a friendly one (denial of aggression). He went on to describe how he painted tigers and how he could make the eyes look at you (paranoid projection). He claimed the tigers he painted, as well as this Mosaic, were "furry, cuddly, and warm" (reaction formation). He said he loved to look at "the cats" at the zoo.

Underneath the denial was the fear of being hurt (a tiger is a rapacious animal), and the patient did make a definite mouth with teeth and jowl. With

the help of the Rorschach, we can further evaluate the meaning of this tiger-head. On Card III, on the Rorschach, Dan saw two "female Ubangis dancing around a fire after first having eaten two missionaries." "They don't mind the gore," the patient said. Presumably, he envisaged the mouth as a dangerous, destructive object; and the blocking of his impulses, for fear of retaliation and punishment, would appear to be a major factor in his stuttering. Since women were represented by him as rapacious, in the Rorschach (cannibals), we can

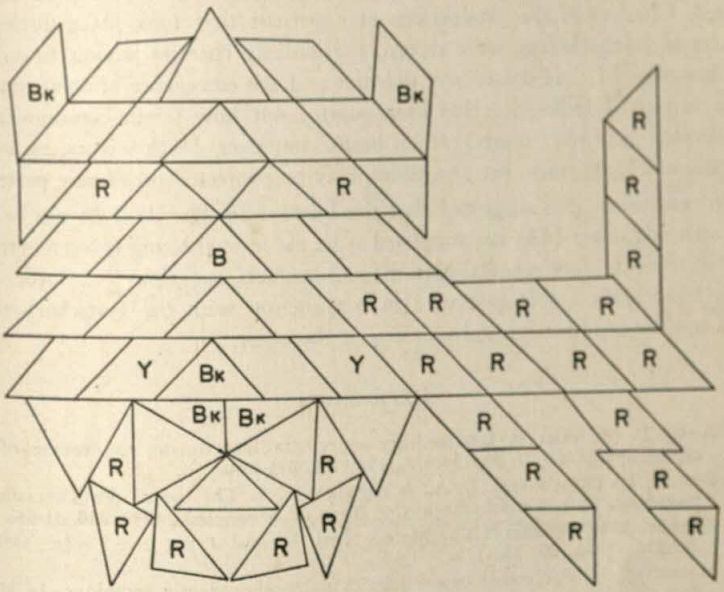


FIGURE 16
DAN—"TIGER OR LEOPARD LYING DOWN"

guess that one aspect of the tiger was female (his strong denial of tiger as anything but cuddly), and that the tiger's mouth could also be representative of the vagina (*dentata*), the teeth (white stones), the red jowl, and the pubic hair (black stones), thus suggesting a castration fear. On the other hand, the patient also showed his narcissistic needs by identifying with the tiger (he called the tiger beautiful "with a beautiful head"), as well as by his impulse to destroy others orally.

F. SUMMARY

I have attempted to demonstrate ways in which the Lowenfeld Mosaic Test can suggest the psychodynamics of a patient, his libidinal and aggressive drives,

his unconscious phantasies, as well as his wishes, fears and anxieties, and his ego defenses against them. The underlying meanings in a patient's productions may be found in his use of form and color, in the size, placement, complexity, and organization of his Mosaic patterns. The symbolic content of the mosaics and the patient's associations to them are a great help to the clinician in his interpretations of psychodynamics. Variations in Mosaic patterns of different patients with similar diagnoses (schizophrenics and depressives), but with variations in types of defense and in ego strength, have been presented and discussed. Changes in the productions of a patient that took place during the course of psychotherapy were shown, particularly changes having to do with the loosening of rigid compulsive defenses and the emergence of the expression of a variety of feelings. It has been pointed out how latent communications concerning guilt over masturbation, hostile impulses, death wishes, as well as sadistic and masochistic sex phantasies, may be projected in Mosaic patterns.

In conclusion, it is suggested that the Lowenfeld Mosaic Test can be used not only as Zucker (14) has suggested as an aid in evaluating ego strength, but also in reflecting motivational patterns and conflicts, conscious and unconscious. It is most likely a tool best used in conjunction with the Rorschach where each test can complement and supplement the other.

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A FACTOR ANALYSIS OF THE F AND REVERSED F SCALES IN THREE REGIONAL SAMPLES*[1]

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A. INTRODUCTION AND PROBLEM

Since the publication of the Authoritarian Personality (1), a feature of the F Scale that has come under critical scrutiny is the unilateral wording of its items. Cohen (5) was one of the first to examine the question of whether F Scale scores reflect only ideological orientation of subjects or are a composite of content and response style. His findings suggest that the latter is the case and have led to a series of attempts to develop and test reversals of the original F Scale items. An F Scale comprising both straight and reversed statements would theoretically make possible the independent study of ideological organization on the one hand and response set on the other.

If scales composed of reversed F statements measure authoritarianism, defined as rejection of democratically worded items, it would be expected that the attenuation-corrected correlation between them and straight F items would approach 1.00. This proposition makes the twin assumptions that the reversals are adequate and most subjects are ideologically consistent. Christie, Havel, and Seidenberg (6) examined previous attempts (2, 4, 8, 10) to reverse the F Scale items. Christie *et al.* found a lack of consistent positive correlations between the straight and reversed F Scales in these studies. They reasoned that this might be due to the inadequate wording of the reversed items (i.e., not "true" psychological reversals) and the samples employed (undergraduates who were not ideologically consistent) rather than demonstrating an overriding acquiescent tendency.

Christie *et al.* constructed an F Scale consisting of 20 of the best discriminating original and reversed statements. The correlations found between straight and psychologically reversed F Scales (scored in the opposite direc-

* Received in the Editorial Office on June 7, 1963. Copyright, 1965, by The Journal Press.

[1] The data in this study are derived from a Doctoral dissertation submitted to Columbia University which was done under the direction of Professor Richard Christie. The author also wishes to thank Jacob Cohen, E. L. Streuning, Herbert Spohn, Leonard Solomon, and Carl Wells, as well as the Watson Scientific Laboratories for the use of their computer facilities.

tion) for eight samples ranged from .10 for undergraduates, to .55 for Washington lobbyists, and .58 for graduate students. The authors assumed that most of their samples were sophisticated and that they were responding to the content of the scale. They interpreted the correlations to mean that the reversed items were true psychological reversals and were measuring the opposite of authoritarianism.

In a study by Klein (9), Christie *et al.*'s scale containing 10 straight F (F +) and 10 reversed F (F —) statements was used as a measure of authoritarianism. Three regionally distinctive samples from Hunter College ($N = 263$), the University of North Carolina ($N = 299$), and Northwestern University ($N = 252$) were selected because it was expected that they would differ with regard to authoritarianism and prejudice scores. Of the two scales, only the F + Scale gave rise to significant differences between the samples (North Carolina displayed the highest and Hunter the lowest authoritarianism) and was significantly more related to prejudice (as measured by an attitude scale) than the F — Scale. The correlations between F + and F — Scales were examined for various subsamples, which were assumed to differ in sophistication and ideological consistency. They ranged from —.01 for 193 sophomores at Hunter College to .12 for 85 North Carolina juniors, seniors, and graduate students. These findings indicate that, regardless of these assumed differences in ideological consistency and sophistication for these college undergraduate samples, the F — Scale is not a true psychological reversal of the F + Scale.

This research not only replicated the earlier study with the typical target population studied, college undergraduates, but also sought to shed some additional light on the nature of the relationship between Christie *et al.*'s F + and F — items through the use of factor analysis.

B. Method

A sample of 400 cases was drawn from the three regionally selected colleges. The three samples were proportionally represented in the 400 cases and will be referred to as the General sample. This was done to make for a more stable structure in the factor analysis due to the larger sample size and the correspondingly smaller sampling error. The 20 × 20 intercorrelational matrices of the 10 F + and the 10 F — items for the four samples (North Carolina, Hunter, Northwestern, and General) were factor analyzed by the Thurstone complete centroid method.

C. Results

The first four centroids extracted accounted for 19 per cent of the total variance.[2] The fact that less than a fifth of the total variance was accounted for highlights the limited amount of response variance under consideration *via* common factors. One may conclude that whatever the determinants of response to the 20 items, they covary to only a very limited extent from *any* cause. The first two centroid factors accounted for 44 per cent and 34 per cent of the estimated total communality, the third accounting for 13 per cent. Because of the predominance of these two factors and the nature of the hypothesis under investigation, a two-factor quartimax rotation (7) was the basic solution for interpretation (Table 1).[3] As can be seen, Factor 1 is Authoritarianism, highly loaded by F + statements and having low or negative loadings on the F — items. The meaning of Factor 2, with its highest loadings on F — statements and lesser positive and some negative loadings on F + items, is not readily evident.

If the Christie *et al.* F Scale were measuring only authoritarianism, one would expect at least one major factor with all items loading positively. The results do not support this hypothesis, but rather indicate that at least two dimensions are being tapped in these samples. In all samples, nine or 10 F + items load the first factor positively and all but one of the F — items do *not* load. On Factor 2, six to eight of the F — statements load positively and all but one of the F + items do *not* load.

If response set (acquiescence) were operating, both scales would be expected to load on the same factor but in opposite directions. With the scales being scored for authoritarianism, an acquiescent *S* would get a high score on F + and a low score on F —. If the scales were reversed, his scores would be reflected on one primary factor with opposite signs. Neither reversible scales nor acquiescent response set is supported by the factor structure. What appears to be the case is that the F + and F — Scales are independent.

The factor structures in the various samples can be compared using Burt's

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[2] The centroids for the three college samples have been deposited as Document number 8238 with the ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington 25, D. C. A copy may be secured by citing the Document number and by remitting $1.25 for photoprints, or $1.25 for 35-mm microfilm. Advance payment is required. Make checks or money orders payable to: Chief, Photoduplication Service, Library of Congress.

[3] When the third factor was rotated, the solution included the same first factor and a division of the original second factor into Factors 2 and 3. In addition, four factors could have been rotated in the regional samples on the basis of the percentage of common variance; the regional four factor solutions would indicate additional division of F — items and further highlight the multidimensionality of the 20 item scale, particularly of the F — items.

TABLE 1
TWO ORTHOGONALLY ROTATED FACTORS IN FOUR SAMPLES

F Scale	Statement	Factor 1 G	Factor 1 Hunter	Factor 1 North Carolina	Factor 1 North-western	Factor 2 G	Factor 2 Hunter	Factor 2 North Carolina	Factor 2 North-western
14	What youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country.	56	50	58	52	—04	01	—10	—02
16	Nowadays more and more people are prying into matters that should remain personal and private.	45	32	44	48	—01	—05	10	—12
13	Most of our social problems could be solved if we could somehow get rid of the immoral, crooked, and feebleminded people.	42	43	35	30	—12	—11	—05	—14
20	Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped or worse.	41	35	52	31	—01	—07	—06	—15
15	Every person should have complete faith in a supernatural power whose decisions he obeys without question.	40	43	43	28	27	26	14	—19
7	No weakness or difficulty can hold us back if we have enough willpower.	39	48	37	47	—01	—03	—06	09
6	Human nature being what it is, there will always be war and conflict.	35	40	28	22	—09	—07	—34	—05
5	No sane, normal, decent person could even think of hurting a close friend or relative.	35	30	30	36	06	—09	15	—01

TABLE 1 (*continued*)

F Scale	Statement	Factor 1 G	Factor 1 Hunter	Factor 1 North Carolina	Factor 1 Northwestern	Factor 2 G	Factor 2 Hunter	Factor 2 North Carolina	Factor 2 Northwestern
3	It is essential for learning or effective work that our teachers or bosses outline in detail what is to be done and how to do it.	35	15	39	41	—10	—04	—10	—07
4	Most people don't realize how much our lives are controlled by plots hatched in secret places.	33	23	27	35	—13	—17	—24	02
1	People ought to pay more attention to new ideas even if they seem to go against the American way of life.	26	23	33	12	31	26	28	—38
10	It is highly unlikely that astrology will ever be able to explain anything.	20	15	20	06	—03	10	—12	—22
2	One of the most important things children should learn is when to disobey authorities.	10	08	16	17	20	29	24	—45
12	The artist and the professor are probably more important to society than the businessmen and the manufacturer.	02	—18	12	02	26	15	15	—32
19	In spite of what you read about the wild sex life of people in important places, the real story is about the same in any group of people.	00	10	04	—15	38	24	36	—28
11	Most honest people admit to themselves that they have sometimes hated their parents.	—01	—09	13	—11	41	25	20	—24

TABLE 1 (*continued*)

F Scale	Statement	Factor 1 G	Factor 1 Hunter	Factor 1 North Carolina	Factor 1 North-western	Factor 2 G	Factor 2 Hunter	Factor 2 North Carolina	Factor 2 North-western
18	An urge to jump from high places is probably the result of unhappy personal experiences rather than anything inborn.	—08	—24	05	—01	11	16	—07	09
18	The findings of science may someday show that many of our most cherished beliefs are wrong.	—08	04	06	—09	40	63	25	—18
9	Books and movies ought to give a more realistic picture of life even if they show that evil sometimes triumphs over good.	—10	11	—09	—14	45	62	36	—25
8	If it weren't for the rebellious ideas of youth there would be less progress in the world.	—20	—26	—11	—14	26	32	26	—26
	$N =$	400	263	299	252	400	263	299	252

(3, p. 343) "unadjusted" correlation coefficient. This correlation indexes the similarity (in the sense of constancy of proportionality) of two sets of factor loadings for N variables. Table 2 presents the six possible comparisons and indicates greater similarity of factor structure for Factor 1 (authoritarianism) than for Factor 2 (F —) in all comparisons.

As an alternative demonstration of differences between F + and F — items, the covariance approximation form of the reliability coefficient—i.e., the Spearman-Brown formula (11)—was calculated for the four samples. The reliabilities of the F + Scales range from .60 to .64, whereas the values for

TABLE 2
"UNADJUSTED" CORRELATIONS BETWEEN F FACTORS IN FOUR SAMPLES

Comparison	Factor 1	Factor 2
General *vs.* North Carolina	.971	.877
General *vs.* Hunter	.934	.920
General *vs.* Northwestern	.958	.768
North Carolina *vs.* Hunter	.926	.781
North Carolina *vs.* Northwestern	.918	.679
Hunter *vs.* Northwestern	.859	.701

the F — Scale are .36 to .47. For the General sample, the reliability for F + is .64 and for F — is .44. The F + Scale, therefore, is a more reliable (i.e., more internally consistent) measure than the F — Scale.

D. DISCUSSION

What emerges from the factor analyses in the three-regional and the General sample is a well-defined, cohesive dimension best described as authoritarianism. Usually nine of the 10 F + items define this factor in all four samples. On the other hand, the second factor is difficult to define with its highest loadings on F — statements.

When one views the functioning of the scales and *items* in each of the four samples, the following is clear:

1. The factor structure, higher variance, higher reliability, and higher values for the "unadjusted" correlations reflect the more unified role played by the straight F items.

2. The only F — item that appears to be somewhat of a reversal is item 1—"People ought to pay more attention to new ideas even if they seem to go against the American way of life."

3. The different loading patterns of F — items on the factors, their lower variance, lower reliability, and lower "unadjusted" correlations help to reflect

their greater scatter and diffuse role. The F — Scale is multidimensional in nature for these samples.

E. Summary

In summary it appears that Christie *et al.*'s F Scale is not composed of two psychometrically *opposite* subscales, but rather of two *independent* subscales as is evidenced by the .08 correlation found by Klein (9).[4]

If one is interested in response sets, the measurement of which is dependent upon true reversals of the F + Scale, it is unlikely that they can be adequately measured with Christie *et al.*'s F Scale in undergraduate college samples. For ideologically sophisticated subjects the scales may be opposites, but they are not in the three regionally distinctive samples of undergraduates studied. For such samples one can expect no relationship between F + and F —. This was the finding reported by Christie *et al.* (6)—.10 correlation between the scales for undergraduates—but not given the critical scrutiny and replication it deserved.

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[4] If one objects to orthogonal rotation as giving rise to independent factors by definition, it should be noted that another rotation, suggested by James Sakoda, which does not impose orthogonality, nevertheless yielded an essentially orthogonal solution.

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SOCIAL DISTANCE WITHIN AND BETWEEN CASTES AND RELIGIOUS GROUPS OF COLLEGE GIRLS*

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A. INTRODUCTION

The term "prejudice" means an unfavorable attitude: a predisposition to perceive, act, think, and feel in ways that are "against" rather than "for" another group, whether it be a caste or a religion, or a regional or lingual group. This prejudice becomes intense if the differences between groups are marked in culture, color, and customs. This prejudice will be expressed either in the form of stereotypes or social distance (1, 2). Social distance is said to be the distance at which the members of the prejudiced group hold another group and its members. Indeed, it is a serious threat in India to national integration, which is so essential at the present juncture. It is assumed to be more marked among religious groups than among caste groups. A study of this type (3, 4, 5) will help us to know the direction and intensity of social distance and to take proper steps to eradicate unhealthy feelings and to promote national integration and harmony.

B. PROBLEM

A comparative study was made of interreligious and intrareligious social distance among adolescent college girls.

C. METHOD

1. *Sample*

For this investigation, 245 girls belonging to the age group of 15 to 22 years and studying in a women's college were asked to cooperate. This total included 30 Muslims, 20 Christians, 10 Jains, and 185 Hindus. The Hindu group included 50 Brahmins, 30 Lingayets, 25 Vokkaligas, 20 Vysyas, 20 Ursus, 20 Coorgis, 10 Harijans, and 10 Sindhis.

2. *Procedure*

The subjects of each group were approached individually by trained representatives of their own group and, on the basis of a modified form of the

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Bogardus Social-Distance Scale, were requested to indicate to what extent they would admit each of the preceding groups into the following social relationships.

1. Willing to have close kinship by marriage.
2. Willing to take food in their house.
3. Allow its members to attend our temple, church, or mosque, etc.
4. Allow its members to become personal friends.
5. Allow its members to be neighbors.
6. Allow its members to stay in our locality.
7. Allow its members to stay in our country, but not permit them citizenship rights.

The subjects had to indicate their reactions to each group as a whole—not to any specific individual of the group. The data were tabulated in such a manner as to allow the determination of social-contact distance: i.e., the average value of the categories into which either the caste or the religious group was placed by the members of each group of subjects.

D. Results and Discussion

Tables 1 and 2 show the mean social distances between each group and each of the other seven groups.

1. *Social Distance Among Caste Groups*

a. Brahmins. Brahmins are considered to be high-caste Hindus, Harijans are low-caste Hindus, the rest fall between these two extremes. Table 1 shows that Brahmins are willing to have close kinship by marriage with other Brahmins; hence Brahmins have no prejudice against the members of their own caste.

Vokkaligas, Vysyas, Harijans, Sindhis, and Ursus express a willingness to take food with but not to marry Brahmins. Lingayets and Coorgis express a willingness to allow Brahmins in their temples, but reject any closer relationship. The average social distance between Brahmins and all other caste groups (as based on judgments made by the members of other caste groups) is 2.3. This mean indicates that other caste groups have a certain amount of prejudice toward and maintain a certain social distance from high-caste Hindus.

b. Lingayets. The members of this group express a willingness to have close kinship by marriage with other members of the group. Vokkaligas, Vysyas, and Sindhis are willing to take food in Lingayets' houses, but are not willing to marry them. Brahmins, Harijans, and Ursus are willing to allow Lingayets

in their temples, but do not wish any closer relationship. Finally, Coorgis are willing to have personal friendship with Lingayets, but wish no closer relationship. The mean social distance between Lingayets and all other groups (as based on judgments made by members of the other groups) is 2.7; thus Lingayets are more distant than are Brahmins from the other groups.

c. Vokkaligas. Among themselves, Vokkaligas are willing to enter into close kinship by marriage. Harijans and Sindhis are willing to allow Vokkaligas in their temples, but wish no closer relationship. Further distant from the Vokkaligas are the Brahmins, Lingayets, Vysyas, Coorgis, and Ursus, which groups are willing only to have personal friendships with Vokkaligas. As based upon the judgments of all "other" groups, the mean social distance between these groups and Vokkaligas is 3.7; thus Vokkaligas are more distant from "other" groups than are either Lingayets or Brahmins.

TABLE 1
SOCIAL DISTANCES AMONG CASTE GROUPS

The judging group	The group judged							
	Brahmin	Lingayet	Vokkaliga	Vysya	Harijan	Coorgi	Sindhi	Ursu
Brahmin	1	3	4	4	4	4	4	4
Lingayet	3	1	4	4	4	4	4	5
Vokkaliga	2	2	1	3	3	3	3	3
Vysya	2	2	4	1	5	5	5	4
Harijan	2	3	3	3	2	4	5	3
Coorgi	3	4	4	4	4	1	4	3
Sindhi	2	2	3	2	3	2	1	2
Ursu	2	3	4	5	3	4	5	1
Mean of distances from the other seven groups	2.3	2.7	3.7	3.6	3.7	3.7	4.1	3.4

TABLE 2
SOCIAL DISTANCES AMONG RELIGIOUS GROUPS

The judging group	The group judged			
	Hindu	Jain	Christian	Muslim
Hindu	1	4	4	6
Jain	4	1	5	6
Christian	4	4	1	5
Muslim	4	4	3	1
Mean of distances from the other three groups	4	4	4	5.7

d. Vysyas. Like the members of other groups, Vysyas are willing to enter

into close kinship by marriage with other members of their own group. Sindhis are willing to take food with Vysyas; Vokkaligas and Harijans are willing to permit Vysyas in their temples; Brahmins, Lingayets, and Coorgis are willing to accept Vysyas as personal friends; and finally, Ursus are willing to allow Vysyas to be neighbors. The mean social distance between Vysyas and all other groups is almost the same as that between Vokkaligas and all other groups.

e. Harijans. Unlike the members of other groups, Harijans express a certain amount of prejudice toward other members of their own group: e.g., they do not favor close kinship by marriage among their own members. Vokkaligas, Sindhis, and Ursus express a willingness to allow Harijans in their temples. This willingness indicates a radical change in one of the important traditions of Hindu society. Brahmins, Lingayets, and Coorgis are willing to accept personal friendship with Harijans; but Vysyas are willing to accept them only as neighbors. The mean social distance between Harijans and all other social groups is 3.7. This is a relatively small distance compared to that which must have existed some decades ago.

f. Coorgis. Coorgis are willing to enter into close kinship by marriage with members of their own group. Sindhis are willing to take food in a Coorgis' house. Vokkaligas are willing to allow Coorgis in their temples. Brahmins, Lingayets, Harijans, and Ursus are willing to accept Coorgis as personal friends. Vysyas are willing to accept Coorgis only as neighbors. The average social distance between Coorgis and all other groups (as based on the judgments of the members of the other groups) is 3.7.

g. Sindhis. Like most other groups, Sindhis are willing to enter into close kinship by marriage with other members of their own group. Vokkaligas are willing to allow Sindhis only in their temples. Though the foregoing indicates a certain amount of social distance between Vokkaligas and Sindhis, it is the smallest social distance reported in Table 1. Brahmins, Lingayets, and Coorgis are willing to accept Sindhis as personal friends. Vysyas, Harijans, and Ursus are willing to have Sindhis as neighbors. Thus, these last-named groups display the maximum social distance between themselves and Sindhis. In general, the greatest social distance between any given group and all "other" groups is that between Sindhis and all "other" groups (as expressed, of course, by the judgments of the members of the "other" groups). This result may be due to the fact that Sindhis are north Indians and differ in many respects from southern Indians. Southern Indian girls are comparatively more conservative than are northern Indian girls.

h. Ursus. Before Independence, Ursus were considered to be a ruling community. Members of the group felt superior to members of other groups.

Among themselves they welcome close kinship by marriage. Sindhis are willing to take food in Ursus' houses. Vokkaligas, Harijans, and Coorgis are willing to allow Ursus in their temples. Brahmins and Vysyas are willing to accept Ursus as personal friends, but do not care for any closer relationship. Finally, Lingayets are willing to accept Ursus as neighbors, but wish no closer relationship.

2. *Social Distance Among Religious Groups*

The members of each of the four religious groups studied are willing to enter into close kinship by marriage with other members of their own group. "Other" groups are willing to have Hindus as personal friends. The mean social distance between Jains and Hindus, between Jains and Christians, and between Jains and Muslims is approximately the same. Hindus are willing to accept Christians as personal friends, but wish no closer relationship. Jains are willing to allow Christians to be neighbors, but wish no closer relationship. Thus Jains seem to feel themselves more distant from Christians than Christians feel themselves distant from Jains. Christians are willing to allow Muslims to be neighbors, but do not care for any closer relationship. Muslims (on the basis of their own judgments) do not seem so remote from Christians. Both Hindus and Jains are willing to allow Muslims to stay in their locality, but wish no closer relationship. Thus, most socially distant from the Muslims are Hindus and Jains.

The social distance within religious groups is not so great as the social distance between religious groups because the maximum social distance between any two caste groups within one religious group is equal to the minimum social distance between any two religious groups. Thus it seems that prejudice is more intense and that the social distances are greater among religious groups than they are among caste groups.

E. Conclusions

1. Among caste groups, Sindhis are most distant from the "other" groups; Brahmins are the least distant from other groups.

2. Social distance is more marked among religious groups than among the caste groups within any one religious group.

3. Among religious groups, Muslims are the most distant from the "other" groups.

4. Among caste groups, Lingayets, Vysyas, and Ursus are the most conservative; Sindhis and Vokkaligas are the least conservative.

5. Among religious groups, Hindus and Jains are the most conservative; Muslims are the least conservative.

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ATTITUDE CHANGE AND COMMUNICATION-ATTITUDE DISCREPANCY*

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A. INTRODUCTION

Previous studies investigating the relationship between attitude change and communication-attitude discrepancy have yielded contradictory results. Some report that the greater the difference between the subject's opinion and the position of the communication, the greater the change (3, 4, 5). Others report that smaller discrepancies between the position of the communication and the attitude of the subject yield greater shifts than do larger discrepancies (7, 9, 10).

Resolving the contradiction in the results of such studies is extremely important from the point of view of theory in this area and also for the practical application of such results. If conclusions such as "greater discrepancies yield greater change" (1) are, in fact, invalid or have limited applicability, it is conceivable that persuasive information now being disseminated on the basis of this premise may be doing more harm than good; i.e., extreme discrepancies may result in "boomerang effects." If, on the other hand, it is incorrect to conclude that smaller advocated change results in greater change than larger advocated change, then some current persuasive efforts may have less effect than might otherwise be obtained. The present study is an effort to resolve the contradiction in the results of previous studies.

An experiment by Hovland and Pritzker (6) is one of those which presents data indicating that "a greater change of opinion is produced by large than by small amounts of advocated change." The authors note, however, that "we are not convinced that the same generalization is involved here as that given by French and others to the effect that the greater the deviation between the communication and communicatee the greater the change produced" (4, pp. 259-260). They point out that different results might be obtained with material in which the individual was deeply involved, and also that "variation

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in the relationship between communicator and communicatee might produce different results." In addition, the results of other studies have also suggested that different results might have been obtained had the attitude-communication discrepancies employed in this study been of greater magnitude (6, 10).

The present experiment was designed to evaluate the effects of such variables. Accordingly, three modifications were made in the Hovland and Pritzker experiment. First, topics were included that were more deeply involving for individual subjects. Second, the relationship between communicator and communicatee was varied, and, third, positions were presented to some subjects which deviated from their original positions to a greater degree than occurred in the Hovland and Pritzker study.

Since "there is no method yet devised for measuring amounts of ego-involvement" (8, p. 248), we included issues in the present experiment on which the majority of test subjects tended to take extreme stands, in contrast with their stands on items included in the Hovland and Pritzker study; i.e., "sororities and fraternities should be abolished" *vs.* "Washington was a greater President than Lincoln." The assumption was that intensity of feeling about a particular issue correlates with degree of involvement. The issues employed in the present experiment then, reflected a greater intensity of feeling by subjects as indicated in the extreme stands taken by them.

The source of the communication—or as Hovland and Pritzker put it, the "relationship between communicator and communicatee"—was varied as follows. Hovland and Pritzker attributed the communications to authority figures previously indicated by subjects as ones whose opinions they would most respect on the issues. In the present study the communication was simply attributed to other college students.

The hypothesis in the present study was that a curvilinear relationship exists between communication-attitude discrepancy and attitude change. Hence we believed that small discrepancies would result in minimal changes, that moderate discrepancies would result in the greatest change, and that very large discrepancies would result in small positive or small to large negative changes.

B. Method

109 college students (55 male and 54 female) of freshman or sophomore standing constituted the subjects in the experiment. Opinion questionnaires were administered to all subjects, and a month later a second questionnaire embodying the communication was given. Twelve unrelated topics were chosen, each of which was embodied in a separate item in the questionnaire.

Three of the items were among those originally utilized in the Hovland and Pritzker study. The other nine items were selected to include topics ranging from intense to moderate involvement by the majority of subjects.

As in the Hovland and Pritzker study, each individual served in "slight" change conditions on some topics, "moderate" change on others, and in "extreme" change conditions on others. Opinion on each of the 12 topics was obtained on a nine-point scale. The subjects were asked to check the one category which most nearly expressed their opinion toward the statement. A sample question is given below:

1. Federal aid should be provided for school construction and teachers' salaries.

   —— Agree Absolutely
   —— Agree Strongly
   —— Agree Moderately
   —— Agree Slightly
   —— Undecided
   —— Disagree Slightly
   —— Disagree Moderately
   —— Disagree Strongly
   —— Disagree Absolutely

The second questionnaire, administered a month after the first, embodied the "communication." The procedure, developed originally by Arnett, Davidson, and Lewis (2), involved the use of check marks to indicate the position of an authority group. The second questionnaire was identical with the first, except for the fact that beside each item, the "opinion" of a majority group was indicated. This opinion on each item served as the communication and was varied according to the subject's initial position on the issue.

The position attributed to the majority group was determined for each item on every individual questionnaire on the basis of the responses obtained in the first questionnaire. A certain proportion of the subjects who gave a particular answer on the "before" questionnaire were given a communication which deviated from their previous response by one position; the same proportion were given a communication two positions away, etc. In other words, if the subject's original opinion was "undecided," a one-position deviation consisted of the majority opinion being represented as "agree slightly" or "disagree slightly"; a two-position deviation indicated "agree moderately" or "disagree moderately"; while a four-position deviation involved presenting "agree absolutely" or "disagree absolutely." By use of the expanded scale based on the one employed by Hovland and Pritzker, it was possible to present a maximum of four-position deviations to each original position, independent of the

original position. Hovland and Pritzker could present only three-position deviations because of their use of a seven-position scale. Although presenting positions which deviated more than four units could not be done independently of the subject's initial position, for certain proportions of the subjects, majority opinions could be presented which deviated by five, six, seven, and even eight positions. However, to present a position which deviated by eight units, the subject's initial position had to be either "disagree absolutely" or "agree absolutely." In the case of one-eighth of those who responded "disagree absolutely" to a particular item, the communication "agree absolutely" was presented; to another eighth, "agree strongly" was presented, etc.

In the instructions for the first questionnaire, subjects were told that this was a study conducted for the purpose of correlating students' opinions on various topics with their educational level. They were also told that the study was being conducted at over 400 colleges and universities around the country. When the second questionnaire was presented, subjects were told that the purpose of the second administration was to evaluate the stability of opinion. They were further told that to make it more interesting for them, the results of the nationwide poll had been indicated on each questionnaire. The first questionnaire presented the questions consecutively on long sheets. Since each question was marked for specific subjects on the second administration, the question sheets were cut apart and all questions were stapled in random-order piles. The purpose of this was to negate the possibility of subjects noting differences between their questionnaires and those of their neighbors. The papers of four students who did note such differences were discarded.

C. Results

The results in this section are presented in the same form as used by Hovland and Pritzker, and the statistical analysis is also identical. Responses before and after the communication were scored on a nine-point scale from 9 for "Agree Absolutely" to 1 for "Disagree Absolutely." Difference scores were obtained by subtraction (After—Before), and the direction of change was calculated from the standpoint of the position advocated. Thus, positive changes indicate increased agreement with the communication, and negative changes indicate increased disagreement.

The mean change scores for eight degrees of discrepancy are presented in Table 1. These results indicate that presenting positions relatively close to the subject's initial stand result in smaller changes than do positions further removed. It will be noted, however, that as the introduced position is moved still further away, its effectiveness in bringing about change is reduced. *T* tests

applied to the differences between these means indicate that mean #1 (smallest amount of change advocated) differs from all others at less than the .01 level of confidence. The differences between means 2, 3, and 8 are not significant and, similarly, the differences between means 5, 6, and 7 are not significant. Mean #6, however, differs from mean #8 (greatest amount of change ad-

TABLE 1
MEAN CHANGE SCORE WITH EIGHT STRENGTHS OF COMMUNICATION

Degree of change advocated							
1	2	3	4	5	6	7	8
.36	1.09	1.21	1.64	1.88	2.36	2.00	1.50

Note: For significance of differences among means, see text.

TABLE 2
CHANGES IN OPINION WITH EIGHT DEGREES OF COMMUNICATION DISCREPANCY FOR EACH ISSUE

Topic	1	2	3	4	5	6	7	8
1. President should have power to reduce tariffs	.50	.86	1.31	1.05	2.30	3.33	2.50	1.00
2. No athletic scholarships should be awarded	.13	1.04	.95	2.11	2.20	2.72	3.25	—
3. Executive branch should have greater control*	.23	1.08	1.47	2.21	2.50	2.22	2.75	—
4. We should continue supporting the U.N.	.60	1.05	.88	1.35	1.42	1.76	1.42	2.42
5. We should purchase $100 million of U.N. bonds	1.22	1.72	1.70	1.88	2.71	2.85	2.50	—
6. Sororities and fraternities should be abolished	.00	1.06	1.05	1.18	1.40	2.90	1.42	.50
7. Federal aid should be provided to schools	.52	1.11	1.62	1.33	1.75	1.66	1.50	1.50
8. Medical care for aged under social security	.25	.94	1.17	1.85	1.38	2.50	2.00	2.00
9. There should be curfews for male students	.07	1.05	.76	.90	.92	1.10	1.00	.00
10. No foreign aid should be given to Communist govts.	.65	1.47	1.20	1.57	2.21	3.85	3.00	5.00
11. Likelihood of cancer cure within 5 years*	.42	.95	1.27	1.85	2.22	3.00	4.00	—
12. Washington or Lincoln greater President*	.58	.73	1.12	.81	1.66	1.75	2.00	—
Median Change	.46	1.05	1.19	1.46	1.98	2.61	2.25	1.50

* These issues included in the Hovland and Pritzker study (6).

vocated) at less than the .05 level, and all other differences are significant at less than the .05 level. As in the Hovland and Pritzker study, a separate analysis was made by individual questions. The results for each topic are given in Table 2, and it will be noted that the pattern shown in Table 1 holds for the individual items. Although the amount of change for the maxi-

mum-advocated-change condition (column 8) exceeds that of the minimum-change condition (column 1) in almost all cases, for six out of 12 topics maximum change occurs at some position other than the most extreme. It should be noted in addition that, on the three issues included in the Hovland and Pritzker study, maximum change occurs under the largest-advocated-change condition.

D. Discussion

The results of this experiment indicate that there is a curvilinear relationship between attitude change and communication-attitude discrepancy. Communications presenting stands relatively close to the subject's position result in less change than do those further removed. A point is reached, however, beyond which greater discrepancies result in diminished change.

These data suggest that there is an optimal discrepancy between the stand of the communication and the position or attitude of the subject which results in maximum change. Thus, to insure the maximum effect from persuasive communications, assessment of the distribution of attitudes held by the target audience must be made, and the deviation or discrepancy of the position of the communication must be determined on the basis of this distribution.

Several previous studies (3, 4, 5) dealing with the variable of communication-attitude discrepancy have reported results similar to those of Hovland and Pritzker; i.e., greater advocated change results in greater change. The results of the present study suggest several possible explanations for these findings. First, the communication-attitude discrepancies employed in these studies may have been of insufficient magnitude. In the present study, for example, if six-position deviations had been employed rather than eight, our results would have verified those of Hovland and Pritzker. Second, the issues involved in these studies were of such a nature as to suggest that they dealt with attitude formation rather than attitude change. On the three issues employed in the present study which had been utilized by Hovland and Pritzker, it was discovered that the majority of subjects took initial positions of "undecided." Thus the majority did not have an attitude or stand at the outset and, when a stand or position on one of these issues was presented and attributed to an authority on the particular issue involved, it is not surprising that greater shift is observed with greater advocated change.

A review of the literature in the area of "attitude change" suggests that many of the studies have actually dealt with attitude *formation*, rather than attitude *change*. Few studies, for example, have involved issues on which subjects took strong initial stands and, on the basis of the psychological processes

involved, it is apparent that attitude change and attitude formation are fundamentally different.

As indicated previously, some of the studies dealing with communication-attitude discrepancy have found that greater attitude change occurs with smaller than with larger discrepancies. On the basis of the results in the present study, it seems possible that these previous studies have employed discrepancies of too *great* a magnitude for the curvilinear relationship to be revealed. In previous work by this author, for example, the above result was obtained (10). Recent unpublished work, however, has shown that smaller discrepancies actually yield smaller change. In the case of these smaller discrepancies, subjects were already in substantial agreement with the position advocated at the outset. They thus shifted less than other subjects whose initial views were in greater disagreement with the position advocated. In terms of *relative* shift, however (the amount of shift proportionate to the actual discrepancy), it was noted in that work, as in the present study, that smaller discrepancies always yield greater change than do larger ones.

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SITUATIONAL VARIABLES IN SOCIALLY DEVIANT BEHAVIOR*, 1, 2

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A. INTRODUCTION

Two general classes of variables have been advanced as major determinants of behavior. The first is internal, personality variables, and the second is external, situational variables. These are generally theorized as acting in combination to affect behavior (4). There has been much effort directed at systematizing the personality variables (3) but relatively little systematization of the dimensions of situational variables. The area of the military offender reflects this general emphasis. There has been extensive work done on the personality characteristics of the military offender (2) but little on the situational variables affecting such dysfunction.

One major situational variable is unit or group membership. There are five training regiments at Fort Dix, New Jersey, each with an average monthly strength of approximately 3300 trainees and 600 cadre. Each training regiment is headed by a relatively autonomous commander whose policies are determined partly by his own judgment. If deviant behavior is to some extent a function of unit membership, then one would expect significant differences between units in offense rates. Further, these units are comprised of three basic-training regiments and two advanced-training regiments. Difference between type of training might be considered as another meaningful situational variable, and it would be expected that deviant behavior in the basic-training units differs in degree from that found in the advanced-training units.

Assuming that these situational variables do influence deviant behavior, the question remains as to how this influence is communicated. Taking into account the chain-of-command system within the military, it may be hypothesized that the "command atmosphere" emanating from the unit leadership is trans-

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[1] Presented in part at the 34th Annual Meeting of the Eastern Psychological Association, New York, April, 1963.

[2] This material has been reviewed by the Office of the Surgeon General, Department of the Army, and there is no objection to its presentation and/or publication. This review does not imply any indorsement of the opinions advanced or any recommendation of such products as may be made.

mitted to the trainees through their immediate superiors. Thus the cadre may be viewed as acting, in effect, as models for the trainees (1) and it would be expected that there is a relationship between the offense rates of cadre and trainees.

B. Method

Data are available for the 16 months from January, 1961, through May, 1962 (excluding February, 1961). Four variables were studied: AWOL, traffic violations, total offenses (comprised of AWOL, traffic violations, uniform violations, and other offenses), and savings-bond participation. It was expected that the latter relates inversely to offense rates. Since the distributions were skewed and the variances heterogeneous, nonparametric methods were employed. Kruskal-Wallis one-way analyses of variance were used to test for the effect of regimental membership on total offenses. Mann-Whitney *U*-tests were employed to test the expectation that total offense rates differ between advanced and basic training. Spearman rank-order correlations were utilized to test the hypothesis that there is a relationship between trainee and cadre offense and savings-bond rates.

C. Results

The median rates for trainees and cadre of the five training regiments are presented in Table 1.

A Kruskal-Wallis analysis of variance for total trainee offenses between regiments yields an H (corrected for ties) of 57.04 which, with 4 df, is significant beyond the .001 level. A similar analysis for cadre total offenses yields an H (corrected for ties) of 12.03 which, with 4 df, is significant between the .01 and .02 levels. The U tests for trainees are presented in Table 2, and for cadre in Table 3. The rank-order correlations (corrected for ties) between cadre and trainee offenses, and savings bond rates, are presented in Table 4.

D. Discussion

With regard to the hypothesis that deviant behavior is, in part, a function of unit membership, confirmation is found in the Kruskal-Wallis analyses. The total offense rates for both trainees and cadre are clearly influenced by regimental membership. The hypothesis that type of training affects deviant behavior is partly confirmed by the U tests. For the trainee data, it appears that the advanced-training regiments are similar to each other, but different from the basic-training regiments. However, regiment "B" seems to be different from all of the others. Except for this same finding, it is difficult to

TABLE 1
MEDIAN RATES PER THOUSAND PER MONTH

Variable	Regiments A		B		C		D		E	
	Trainee	Cadre	Trainee	Cadre	Trainee	Cadre	Trainee	Cadre	Trainee	Cadre
Traffic violations	.5	6.5	0.0	3.5	0.0	10.5	0.0	9.5	1.0	9.0
AWOL	14.0	4.0	1.0	0.0	4.0	5.0	3.0	2.0	15.5	3.0
Total offenses	18.0	14.0	3.0	12.5	5.0	17.5	5.0	18.0	19.0	21.0
Savings-bond participation	56.5	71.0	9.0	51.0	27.0	67.5	53.0	65.5	12.5	43.5

Note: Regiments A and E are advanced-training units; regiments B, C, D are basic-training units.

generalize from the cadre data. This might be expected since training is a total situation for trainees, while the cadre tend to have more outside outlets. Also, cadre as a group are more homogeneous in terms of their military careers and experience, and may be thought of as being more stable in behavior. The hypothesis that differences in "command atmosphere" between regiments are

TABLE 2
U TESTS BETWEEN TRAINEE TOTAL OFFENSE RATES

	Regiments			
	A	B	C	D
B	1.5***			
C	5.0***	57.5**		
D	3.5***	74.0*	107.5	
E	101.5	2.5***	5.5***	3.5***

* Significant at the .05 level.
** Significant at the .02 level.
*** Significant at the .002 level.

TABLE 3
U TESTS BETWEEN CADRE TOTAL OFFENSE RATES

	Regiments			
	A	B	C	D
B	99.0			
C	97.5	72.5*		
D	93.5	62.0**	124.0	
E	71.0*	51.0**	113.0	101.0

* Significant at the .05 level.
** Significant at the .02 level.

TABLE 4
SPEARMAN RANK-ORDER CORRELATIONS BETWEEN CADRE AND TRAINEE RATES

	Trainees			
Cadre	AWOL	Traffic	Total	Savings
AWOL offenses	.28	.20	.27	—.08
Traffic offenses	.21	.30	.24	—.15
Total offenses	.17	.20	.29	—.07
Savings-bond participation	—.12	—.06	—.19	.72

Note: r of .19 significant at .05 level, 1 tail.
r of .22 significant at .05 level, 2 tail.
r of .26 significant at .01 level, 1 tail.
r of .29 significant at .01 level, 2 tail.

transmitted to the trainees by the cadre acting as social models is clearly supported in the correlation analysis. The correlations between cadre and trainee offenses are low but generally significant. The relationship between trainee and cadre savings-bond participation rates is extremely high. However, in

every case where savings-bond rates are correlated with offense rates an inverse relationship is found, thus indicating that the area of influence of cadre on trainees is not limited to dysfunctional behavior.

The present findings yield two implications for the management of deviant behavior. First, it appears possible to influence the frequency of offenses within a group by modifying those policies and attributes of the group that comprise the "command atmosphere." Further research is necessary to determine the relevant variables in the "command atmosphere" and their specific effects on deviant behavior. Second, it also appears possible to affect socially deviant behavior by improved methods of cadre selection.

E. Summary

The offense rates of trainees within the five training regiments at Fort Dix, New Jersey, were studied to determine whether socially deviant behavior was influenced by certain external, situational variables. It was found that group membership and type of training are significant determinants of the frequency of offenses. It was also found that the offense rates of trainees are significantly related to those of their immediate superiors, indicating the importance of the social models in the training environment. Implications for the management of socially deviant behavior were discussed.

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THE USE OF A HOSPITAL VOLUNTEER PROGRAM IN THE TEACHING OF ABNORMAL PSYCHOLOGY*[1]

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A. INTRODUCTION

The participation of college students in the volunteer programs of mental hospitals is by now almost commonplace. In 1954, one of the first of such programs sprang up in the Boston area as the result of the efforts of a group of Harvard students (1, 3). At that time and in that locale, students were responding to some serious service needs of one of the nearby state institutions and developed what at first was a somewhat loosely structured program which attracted the involvement, in varying degrees, of over 500 college students from the Boston area. This particular program has continued to thrive, having been expanded in recent years to include a "Halfway House" for mental patients where a group of students live with a group of recently discharged patients who are attempting to readjust to community life (2). The educational value of such activities has been recognized at Harvard, where a course in Volunteering affording full academic credit has been established in the Department of Social Relations. It is with the educational feature, or, more specifically, usefulness of such a program as an adjunct to an undergraduate course like the traditional one in abnormal psychology, that this paper is concerned.

In the early part of 1962, we at the University of Rochester became impressed with the educational benefits to be derived from a properly organized hospital volunteer program. Specifically, it was felt that students of abnormal psy-

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[1] The authors are grateful to the staff of the Veterans Administration Hospital at Canandaigua, N.Y., for making possible the program to be described. A special note of gratitude is due Dr. B. F. McNeal, Chief Psychologist, for his support and Dr. L. Hukill, Ward Psychiatrist of Building 6, for his encouragement of and active participation in the program. Dr. E. L. Cowen, University of Rochester, read the manuscript and made many useful suggestions for which the authors are grateful.

[2] William L. Klein was the clinical-psychology trainee referred to in the body of the paper as the individual having the most to do with developing the program in the hospital and managing its operation. As such his primary interest was in the service potential of such a program. Melvin Zax, the coauthor, was the instructor whose class participated in the program and as such he was primarily involved with it as an educational adjunct.

chology could derive enormous gain from an opportunity for first-hand interaction with individuals who were actually suffering the kinds of adjustment problems that are studied in the abstract in the ordinary academic course. Happily, at the same time, some of the staff members of the nearby Veterans Administration Hospital at Canandaigua, New York, were beginning to feel the need of some sort of program that would bring many long-term patients into contact with the community. The staff-members' particular concern was for the not-too-rare patient who might have been capable of exercising a certain amount of initiative and self-direction outside of an institutional setting were it not for the fact that long isolation from the community made any sort of contact with that community threatening. Not uncommonly, an extended stay in the hospital has the effect of encouraging passivity and dependency with an attendant lowering of the self-esteem that a more active person can build and maintain. Furthermore, having lived apart from the outside world for so long, such patients find even the simplest social acts filled with the danger of failure and rejection, and for many withdrawal and apathy seem far more preferable. Additionally, the fears of the recovering mental patient are to some extent reinforced by casual contact with outsiders who are poorly educated regarding emotional disturbance and who, not uncommonly, try to mask their own frightened watchfulness behind a transparent cloak of patronization and oversolicitousness.

Such nicely complementary needs inevitably brought the university and the hospital together through the liaison of an advanced graduate student in clinical psychology (William L. Klein) who was assigned as a trainee at Canandaigua VAH. It was readily agreed that students, as the result of some regular contact with the hospital, would be able to learn things about mental institutions, people who are treated in such places, and quite possibly about themselves in a way that simply would not be possible in any classroom. From the viewpoint of the patients it was felt that regular contact with young, enthusiastic people who could provide the example of growth and a directing of themselves toward definite life goals was of inestimable value. As an added premium, young college people as "the future leaders of our society"—to steal a hackneyed phrase from old graduation addresses—might better help educate the part of the community they settled into as the result of their experiences.

Having agreed in principle that such a program was desirable, we found practical implementation necessary. It would be nice to report that the program was carefully planned from the outset and that it proceeded along well-delineated lines, but this was not the case. Apart from a few procedures that

were agreed upon by the course instructor and hospital personnel for setting up the group and for the general routine it would follow, specific directions were not marked out. The entire project was pursued with a feeling that the lack of experience with such a project precluded a compulsive organization since important variables were unknown, and that a spirit of investigation and readiness to explore new directions was necessary. In the long run it was felt that this spirit was an asset since it permitted the program to take a unique form, shaped primarily by the character of the students taking part in it. In fact, the "naturalness" of the students' reactions fostered by the unstructured nature of the program later became its hallmark.

The preliminary design of the project did stress three elements. First, a specific group of screened volunteers would be brought together regularly (one afternoon each week) with a specific group of patients. Second, in their weekly sessions, the volunteers, following a period of interaction with patients (lasting about two hours), would meet as a group with members of the hospital staff (psychologist, ward psychiatrist, a psychiatric caseworker, and any other interested professionals) to discuss the events of the day, to ask any questions which seemed pressing, and to voice any opinions or feelings which demanded expression. Finally, it was planned that these group sessions would be tape-recorded for periodic use in the classroom as a means of bringing some features of the program to the nonparticipants taking the academic course.

B. Method and Procedure

The proposed program was announced by the course instructor (Melvin Zax) in his abnormal-psychology class shortly after the beginning of the spring, 1962, semester. The project was described as a volunteer program that could be engaged in in lieu of the writing of a required term paper. It was also pointed out that the program demanded giving up a full afternoon each week for the entire semester, a total of more time than would be spent preparing most term papers. Students were told by the instructor that those taking part in the program would have an opportunity to see the workings of a mental institution at first hand, to interact with patients as real people, and to talk with and observe hospital personnel in various capacities. Students were specifically discouraged from viewing themselves as therapists and instead encouraged to think of their visits as providing patients with a pleasant, "human" interaction. Of the 45 members of the class, 25 volunteered to take part in the proposed program—an enthusiastic response considering that participation was limited to a specific afternoon each week which may have been inconvenient for some. It was necessary to pare this group down to one which numbered 10 or 12

and this was partly done through screening interviews. Such interviews had not been regarded as necessary in the Harvard program (1, 3) since attendance at the hospital was kept entirely voluntary and it was felt that a process of self-selection took place. In this case, once students entered the program it was intended that participation should be regular so that at least a gross screening for obviously maladaptive social characteristics seemed necessary.

The screening interviews were conducted by two advanced graduate students of clinical psychology[3] and were of approximately 30 minutes in duration. Although they were relatively unstructured, the interviews were purposely made stressful in that they were directed toward uncovering the basic reasons for volunteering for the program and the thinking of the students regarding how certain difficult interpersonal situations might best be handled. This approach uncovered useful information but also permitted the making of gross observations of the degree of social presence and overt anxiety under uncomfortable circumstances. That the interviews were useful from another viewpoint was attested to by the fact that those who were chosen to take part in the program commented spontaneously later in the semester that the interviews were the most stressful they had ever encountered and this fact seemed to contribute a great deal to their sense of status, responsibility, and motivation. Very few students were eliminated on personality grounds and so many of the volunteers seemed suitable in terms of genuine interest and ability to relate well that a total of 13, seven females and six males, was finally chosen. Although information regarding academic standing was not formally available to those setting up the group, the chosen students were skewed on the high side on this variable. Four of the 13 were elected to Phi Beta Kappa subsequently, with two or three others being likely contenders for this honor in their remaining college years. As to personality types, the group contained both those who prefer to approach the world with an intellectualized, isolating, and "objective" approach and those who were more open, unguarded, and "subjective."

Although a good deal of time was spent by hospital-staff attempts to decide on some formal structure within which the group might interact with patients, little in the way of an organized program was established. It was felt that reports of previous experience with such groups as well as the difficulty of seeing ahead to how such a program might develop and find a place in the overall hospital scheme indicated that an unstructured approach allowing for a maximal interchange of information and experience would be best. More specifi-

[3] The authors are grateful to Mr. P. Jarvis, University of Rochester, who served as one of the interviewers and who is presently involved in the continuing functioning of the volunteer program.

cally, this entailed putting a group of patients together with a group of students and allowing them to work out their own channels of relating. The students and the patients were allowed to have literally the run of the entire hospital in which to move about (this was made easier by the fact that the building they would be on was an open one with full-privilege patients) and might choose to work together in small groups or one-to-one relationships, whichever they felt more comfortable with. The staff members, for their part, offered little or no diagnostic and historical material on any of the patients, and actively interfered in any relationship only if it seemed necessary or if specific help with some problem were solicited. The rationale for the latter was part of a concerted attempt to prevent this program from becoming just another classroom-type experience and, importantly, to allow the students to exercise their own initiative and abilities, rather than having this freedom taken out of their hands by dictating a great many details from above. Although there was some trepidation about letting the students and the patients go off unsupervised and unstructured as to task, overriding these fears was the conviction that the program would be successful only if the students were able to feel that whatever was accomplished was their own inimitable doing.

Once the final group was selected, the graduate student in charge met with the members briefly a few days before their first trip to the hospital. There was very little, if any, formal instruction or organizational data given at this meeting, aside from deciding on who would travel with whom (transportation to and from the hospital was provided by the students themselves in a car pool). At roughly the same time, in the hospital, and in consultation with a social worker, a group of patients was selected to meet with the student group. Predominantly, the "modal" patient in this group was middle-aged, hospitalized at least two years, generally lacking in family contacts, and with one or another schizophrenic diagnosis. In contrast to a more "backward" type of population, however, many of the patients were of average or better intelligence and fairly talkative in an average social situation. Also in this group were patients who came nowhere near this modal type, ranging from rather psychopathic character disorders to severe neurotic characters incapacitated for normal living.

Both the ward psychiatrist and the graduate student met with the patients before the students' coming to explain something of the program to them. The patients were informed that they had been selected to meet with a group of college students over a period of a few months, in order to give the students some "experience" in the life of a mental institution, and that perhaps they, the patients, might get something out of the experience as well. They were

also told that this was completely a voluntary thing and that anyone who did not feel up to participating in such a program could talk it over with the graduate student and might be excused. Three out of the 15 original patients chosen immediately asked to be relieved of their part in it, mainly on the basis of their feelings of inadequacy in any sort of social situation. Several others also passively drifted out of the group in the week to come; in all cases there was no pressure put on any of the patients to remain, although a rather careful exploration with them of their reasons for doing so was made. Interestingly, some of these who asked to be dropped eventually made their way back into the group, evidently after ascertaining that it was not going to be as threatening as they expected. Also at this meeting, some of the patients present spontaneously offered the suggestion that perhaps contact with these young people might help the patients' rehabilitative efforts in some way, although this was an issue that was rapidly dropped once it had been brought up.

In their first afternoon at the hospital, students were officially greeted by hospital officials and listened to a talk by the psychiatrist on the ward—where they would work—on the few matters of procedure which had been worked out. In retrospect, most of the students looked upon this first afternoon as a dull and pompous introduction to hospital bureaucracy, but one which in a sense "set the scene" for the context in which they would be seeing patients and gave them a feeling for the kind of institutional atmosphere that most of them were dead set against. Their somewhat naive and untempered intolerance for such an atmosphere seemed to play an important part in their eventual desire to "do something." There was no immediate attempt made to rationalize away these feelings or to give a "realistic appraisal" of the situation, the staff often finding itself identifying with the students' feelings or, in some cases, having feelings reawakened by the students.

C. Results

One week later, the first meeting between patients and students took place. It was obvious that the students were experiencing a great deal of anxiety over this meeting, and again no real attempt was made to mitigate the feeling. The students were led to a large room where the patients were already gathered and, with no other formal introduction, the students were left there on their own. From a vantage point, it was observed that there was almost a minute of shocked silence, after which one of the students took it upon himself to introduce the members of his group and asked the patients to do the same. From this point on there was a relatively smooth transition into students and patients breaking up into small groups of three or more, and even a few

single pairs of patients and students. Within 15 minutes, everyone seemed to be talking, and not much later a few people began moving out of the room—patients taking some of the students on their own tour of the hospital, showing them their rooms, walking outside on the lawn, etc. It goes without saying that the students' eventual reaction to this first meeting was one of tremendous relief and an almost victorious sense of accomplishment.

As already mentioned, following each (approximately two-hour) session with the patients, the students met for 45 minutes to an hour with the graduate student (serving as discussion leader), the ward psychiatrist, the psychologist, and the social worker. Although more will be said later about this, the group was run without a great deal of formal direction, the students rather quickly getting the idea that this was an open forum for them to exchange experiences and bring up problematic issues, of which there never was any lack. Whatever intervention took place by staff members was mainly in the form of requests for clarification or various attempts to rephrase and restructure problem areas so as to highlight and tie them together. "Deep" interpretations and technical jargon were almost completely avoided; the focus was on the more immediate feelings and behavior of interpersonal contact, an area and approach difficult to cover adequately in the academic classroom. This procedure became so much a hallmark of the sessions that an attempt, later on, by a staff member to start a formal, diagnostic discussion of psychotic symptoms was met by cool avoidance and eventually, out-and-out hostility.

We have stated that the students' initial reaction to their meeting the patients was a mixture of relief and accomplishment. Their "success" in talking to the patients led to a ready identification with the latter, and they spent a great deal of time wondering out loud just why some of them were in the hospital at all. They quickly voiced many of the patients' long-standing "gripes" about hospitals, psychiatrists, nurses, patient care, etc., the staff spending many uncomfortable minutes at the outset listening to its work in the hospital being both directly and indirectly berated. This was further fueled by the students' frustration at not immediately getting the technical information they wanted—information (such as permission to be given factual data from patients' charts) which would have structured the situation as another academic one for them, making it more familiar and secure. It should also be pointed out that this appeared part of a definite need on the part of the students to see themselves as different and separate from the staff, particularly in view of the unstructured situation in which they had been placed and the lack of any clear definition of what their role really was. Their attempts at making this definition formed a consistent theme throughout all the meetings.

Beginning with the second session, however, a note of consternation was introduced. A relaxed attitude on both the patients' and the students' part, although leading to even closer contacts and relationships, also provided for many of the patients beginning to drop some of their initial controls and defenses, resulting in the display of more and more of their pathology. The students were "suddenly" faced with the fact that these patients really were ill, and with this realization a great deal of the initial bravado disappeared to be replaced by puzzlement, concern, at times helplessness, and at times a reactive kind of flippant unconcern. With this, there was also a beginning of turning to each other for some kind of absolute and magical approach to patients, although some kept insisting on a "be-yourself" philosophy that transcended all other forms of therapy. Much of this behavior can be seen in the light of turning away from the "nongiving" adult staff members present, and looking more and more to the patients and to each other for the purpose and meaning of their experience.

It was at this point that patient-student relationships started coming up for scrutiny, at times in the form of confessional-like episodes of pouring out a critical point in a specific relationship. What rapidly developed from here on in was a long, and at times painful, inquiry into the question, "How do you get close to someone, and what do you do once you are there?" An important, although often unspoken element in all the discussions was the students' quest after a stable picture of themselves. What seemed to be happening was that with these patients (perhaps more than at any other time in the current situation) they had to be consistent and "real" people—a crucial adolescent problem to begin with. Under the pressure of patient demands for closeness and attention, as well as the growing group demand for "getting somewhere" with the patients, intellectualizing defenses were being sorely threatened, and the problem for each student was increasingly one of finding out what was unique, spontaneous, and "real" in him that he could offer in a relationship. A major catalyst for all this ferment was the fact that there were female students in the group relating to male patients. The somewhat romantically and sexually tinged situations they sometimes found themselves in led to a great deal of questioning about the best ways of setting limits on personal relationships. It often sounded to many of the listeners as though the female students were discussing relationships much more immediate than those with the patients.

D. Discussion

As the sessions grew to a close, what began to develop, aside from a great deal of closeness among the members, was a much more specific idea of what

they, as students, could offer the patients, as well as an appreciation of what the patients seemed to need the most. The hallmark of this became the students' insistence that they were neither staff members nor therapists, but individuals who could offer the patients a "feeling" that "outside" people could be interested and accepting of them—a unique kind of experience that the students saw themselves being uniquely able to offer. This rationale went so far, in fact, that one of the originally most intellectualizing members of the group asserted near the close that they were not interested in the patients' dynamics and how the patients got to be the way they were—what counted was the here and now of the patients' existence. An attempt, at the last group meeting, to offer some dynamic-historical material on some of the patients fell disappointingly, although predictably, flat in spite of the fact that this had been one of the major requests of the students at the outset and which had purposely been put off to the end by the staff. Also, in the final weeks of the group, there was a new note of self-assurance and spontaneity in relations with the patients, along with a warming towards the staff members present and increasing use of them to discuss personal feelings and their significance.

This account of the progress of the volunteer program as it was constituted attests to the "gut" learning that was afforded by this experience and which simply could not be provided in the usual classroom situation. The impact of the overall experience on many of the group members was quite directly described when they were asked at the end of the semester to evaluate their course in abnormal psychology. All of those participating in the Canandaigua program singled it out as an outstanding feature of the course, and several described it as their most meaningful college experience. While the program was of decidedly less significance for class members who did not have an opportunity to participate actively, some of the tapes which were made of group sessions and which were used approximately for one class session every two weeks provided uniquely valuable teaching materials. Generally this occurred when one or more volunteers discussed a specific problem that had arisen during a session or over a series of sessions with patients. For example, it was of inestimable value for the entire class to listen to the reasoning and the debate of two group members who had encountered a real person with paranoid delusions. The dogged attempts of one of these students to deal with the delusions purely on an intellectual level, and a description of the futile results of this approach, conveyed dramatically an impression of the deep emotional significance of such symptoms. The example, too, of the frequently recurring struggle with the question of how to place limits on a relationship without destroying it completely also provided unique teaching material. For the

seasoned clinician, such a matter may seem trivial since it is well learned and some of it at least is understood. But this occurs only after considerable experience, which will never be available to most students who take a course in abnormal psychology.

The type of undergraduate practicum which has been described has enormous potential value as a teaching device through which much nonverbalizable material can be conveyed. Such an approach can well result in an involvement in the problem of emotional disturbance which will both recruit trainees for the mental-health professions and enlist the heartfelt interest of large numbers of educated adults. Furthermore, with the increasing mention of the need for wide-scale community prevention programs in which efforts are made to reach very large numbers of individuals before serious problems erupt, such practicums can be looked to for the fulfillment of important service needs. Our experience with the described program indicates that undergraduates have both a great deal to gain and much to give in clinical settings and, with the great need that exists, it would be unwise to fail to reap the mutual benefits that can derive from undergraduate practicums of the type described.

As to the future of this program, the staff members of the Canandaigua Veterans Administration Hospital have been sufficiently impressed by one year's operation of the program to allow it to continue on a slightly expanded base (one staff member at Canandaigua has even introduced such a program as a feature in a course that he is teaching in abnormal psychology). In the current academic year, two University of Rochester groups are in operation—one in the same ward as the original group and one in a ward housing more severely regressed patients. In addition, students are participating over the entire academic year through the auspices of the undergraduate course in personality dynamics as well as the course in abnormal psychology. Continued operation of this program should make it possible to make formal evaluations of its effects both from the patient and the student point of view, and some of these evaluations are already getting under way. Even without the precisely measured data, however, this type of program seems to offer a real advance in the teaching of abnormal psychology.

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THE DIFFUSION OF INFORMATION WITHIN SECONDARY SCHOOL STAFFS*

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A. INTRODUCTION

Communication is a basic process of organization. It is the "nervous system" that permits members of an organization to cooperate with one another and coordinate their work. School administrators are acutely aware of the importance of staff communications as it relates to school management and normally see to it that regular means of communication are maintained between themselves and the faculty and among the faculty members. They also recognize the tremendous significance of the unplanned, informal procedures by which information is disseminated in the school. Indeed, some have an almost superstitious credence in the "grapevine," assuming that when they say something to one staff member they have told them all. Nevertheless, the communication procedures in the school often seem to work in fits and starts. Breakdowns in both formal and informal channels are not uncommon. In the absence of fundamental knowledge concerning the communications process, the administrator must stand by helplessly when communications fail, or fall back upon his "intuition" to guide him in rectifying the problem.

The study reported here attempted to shed light on the word-of-mouth dissemination of information from the principal to the teachers in the public high school. This personal transmission of information downward through the authority system of the school is, of course, but one facet of the staff communication process. More highly formalized procedures frequently are used for the same purpose, and both the upward and the lateral flow of information are worthy of investigation in their own right. But the investigators believed that the downward spread of information from teacher to teacher—a problem of immediate concern to school administrators—was a convenient point of entry into the entire area.

A basic proposition in the study was that the extent of information diffusion is a function of the established patterns of interaction existing within the school faculty. This proposition is reflected throughout the wide variety of

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laboratory and field investigations of person-to-person communication which has appeared in the social-psychological literature in recent years. It underlay the classic studies of rumor which fostered much of the subsequent research (1, 3). The extensive research literature on communications in small, face-to-face groups attests to the importance of interaction patterns in understanding information flow, as do the naturalistic observations and field experiments that have been conducted in much larger social units (10). Studies that have traced the dissemination of dramatic news events and messages on leaflets dropped from airplanes (11, 15); studies that have observed the fate of planted rumors in housing developments, girls' schools, and formal work organizations (2, 7, 16); studies that have examined the transmission of new ideas in medical and agricultural circles (12, 14)—all have underscored the significance of person-to-person interaction patterns for information flow.

It seemed, then, that the regularized interaction patterns existing among high-school staff members should provide the linkages through which a given item of information could most readily pass. Sociometric bonds, for example, played a major part in the attempts of Festinger, Schachter, and Back to account for rumor flow in a campus housing development (8). "The data from both [of our] studies," the latter authors wrote, "tend to support the hypothesis that the existence of a friendship between two people also implies the existence of an active channel of communication" (8, p. 125). In the same way, the work contacts within a formal organization should serve the same function, at least with respect to work-related matters. On these grounds, high-school staffs in which the pre-existing interaction patterns are the most highly articulated should be the ones where word-of-mouth dissemination of administrative information is optimum.

The availability of methods for mapping the communication structure of large organizations and, specifically, for measuring the degree of articulation (or "saturation") of communication bonds within schools (4, 5, 13, 17) led the investigators to formulate and test two hypotheses: (*a*) the greater the saturation of communication contacts within the secondary-school staff, the greater will be the diffusion of an item of information transmitted informally from principal to teachers in a given period of time; and (*b*) the greater the number of communication contacts (or "span") of a given staff member to whom information is transmitted by the principal, the greater the number of staff members to whom he will relay it. As self-evident as these hypotheses appeared, the investigators believed that empirical work was needed before extrapolating these concepts and research findings from previous studies to the educational setting.

B. Methods of Study

The basic plan of the research was to select four otherwise similar high schools that contrasted in the degree of saturation of communication contacts within their teaching staffs. The high-school principals, cooperating with the investigators, casually planted an item of information with three preselected teachers in each school. The "input subjects" varied in the number of other staff members with whom they were in regular contact. Three days following the information input, the investigators sought to determine the number of staff members who had learned of the planted information and from whom they had heard it. The study was repeated two weeks later in the same schools.

1. *Measuring Saturation and Selecting Schools*

Six secondary schools in the metropolitan area of St. Louis County, Missouri, ranging in faculty size from 16 to 27 teachers, were used as the pool from which four schools of contrasting degrees of saturation were to be selected.[1] The method used to collect data to measure the saturation of communication contacts was a simple sociometric device asking staff members to list the names of other teachers in the school whom they saw regularly and with whom they discussed school and classroom affairs. After each name listed (they could list as many names as they wished), staff members checked the frequency with which they talked with the person. The frequency scale was divided into five values ranging from "several times daily" through "less often than weekly." A list of all of the staff members in the school was attached to the questionnaire to specify unequivocally the category of persons designated as "staff members" in the instructions. Teachers sealed the questionnaire form in an envelope and left it in the central office for the investigators.

Each principal had announced to the staff that his school was participating in a research project and asked the staff for their cooperation. No further information was provided by him, but the Staff Communications Questionnaire, described above, was accompanied by a covering letter from the investigators briefly explaining the project as a study of communication patterns. All staff members returned questionnaires with no apparent difficulty in completing them, and later interviews with the principals and certain staff members indicated that generally the questionnaires were filled out willingly and honestly.

Data for each school were tabulated in matrix form with designating teachers in the rows and designated teachers in the columns. Only those

[1] Three additional high schools were included in the initial pool, but for various reasons they could not be used.

contacts that were reciprocated (or verified) by the other party were regarded as communication bonds in this study. The degree of saturation of each school was computed by dividing the number of communication bonds in the school by the total possible number of bonds, or $\frac{1}{2}N\ (N-1)$, where N is the total number of staff members. Although the principal was a central figure in the communication structure of every high school, computations were based upon bonds within the teaching faculty alone, excluding the principal.[2] Table 1 shows the degree of saturation of each of the six schools.

TABLE 1

DEGREE OF SATURATION IN SIX ST. LOUIS COUNTY HIGH SCHOOLS

School	No. of staff	Bonds indicated	Bonds possible	Degree of saturation
A	21	83	210	.395
B	15	38	105	.361
C	23	90	253	.355
D	19	56	171	.327
F	26	89	325	.273
G	24	62	276	.224

The index of saturation in Table 1 is based upon the direct, first-order contacts among staff members. The possibility remains that two schools with identical saturation indexes differ nevertheless in the extent of the articulation of two-step and three-step communication chains through their communication structures. This would occur if the communication bonds in one school were confined to exclusive, noninteracting cliques of teachers but in the other school were distributed more equitably among the staff. Matrix multiplication provides a technique by which differences in clique structure among the staffs can be detected (6). In the event that severe schisms exist within a school's faculty to limit the articulation of the communication structure, saturation indexes based upon squared and cubed matrices would not be substantially higher than that based upon the first-order matrix. Consequently, matrices for the six schools were raised to the second and third power, and the saturation indexes were compared among the schools.

It was found, following this procedure, that two schools consistently ranked toward the top and two schools consistently ranked toward the bottom in saturation indexes based upon the first-, second-, and third-order matrices. The two schools, A and C, which were consistently toward the top were selected as

[2] Inclusion of the principal in the computations had the effect of elevating the saturation indexes but not of altering the relative positions of the schools.

high-saturation schools and the two at the bottom, D and G, were chosen as *low-saturation schools* for the experiment on information diffusion.

2. *Selecting Input Subjects*

The study plan called for principals to transmit an item of information to three staff members in the schools who varied with respect to the span of their communication contacts. Data obtained for the measure of saturation were used to select the input subjects. Staff members in each of the four chosen schools were first ordered according to the number of their communication contacts. Then three teachers were drawn from different parts of the rank order to represent "high," "medium," and "low" span input subjects. Care had to be exercised in choosing these three subjects to insure that the "high," "medium," and "low" spans were about the same, respectively, from one school to another. Had we chosen three input subjects from a high-saturation school whose average span of contacts was greater than that of the three input subjects in a low-saturation school, we could not have made a fair test of the first hypothesis regarding the relationship between saturation and diffusion rates. Teachers with no communication contacts whatsoever were omitted from consideration.

3. *Transmitting the Message*

The investigators delivered the experimental message to cooperating principals one morning early in the school week and instructed them regarding its transmission. The principals were told which teachers had been selected as input subjects, and they were asked to seek out these teachers individually in the course of the morning and to transmit the message to each as casually but as nearly identically as they could. In the case of the first message, which entailed principally showing the input subjects a letter, standardization of the transmission procedure was readily attained.

Two messages were used in each school, a two-week period of time intervening between their transmissions. The fabrication of these messages required unusual attention. Ideally, the message content would have been highly startling and dramatic, thus insuring its spontaneous and rapid dissemination through the school faculties. Or it would have been uniquely relevant to the norms or immediate work problems of the faculties of each school. Since the message was to be initiated by the school principals, however, it had to be reasonably innocuous and plausible so as neither to disrupt normal school operations nor to shake the teachers' confidence in the principal's veracity. And since the same message was to be transmitted in four different high schools, the

content had to touch upon concerns which presumably were common to faculties across all four schools.

The first message (Message 1) was patterned after the information planted by Festinger, Schachter, and Back in their housing-development study (8). It consisted of a letter typed on an out-of-town photographic-studio letterhead and read as follows:

> Our studio has been assigned to do a picture story of outstanding high schools in the Middle West. The story will appear in a prominent national magazine. After consulting educators in the St. Louis area, your school was selected as one of four schools in St. Louis County in which we would like to gather material for our picture story. If we obtain your consent, our photographer and a reporter will visit your school on Friday, April 18, 1958.
>
> On the basis of what the individuals said who recommended your school, we are looking forward to visiting with you and your staff.

The letter was signed with a fictitious name. The principals were asked to hand the input subjects the letter with only the comment, "I guess the staff will be interested in this."

Message 2 was an orally delivered item of information regarding an issue which, in fact, had been under consideration in the private councils of the county-wide teachers association to which virtually all faculty members belonged. The principals transmitted it as nearly verbatim as casual conversation would permit.

> Teachers who are members of the Suburban Teachers Association will be invited to join a "Free Will Association," in which each member contributes $1.00 whenever another member dies. This will make a sizeable sum immediately available to the dependents of the deceased. Membership in the "Free Will Association" will be voluntary.

After reporting the information, principals were instructed to ask the input subjects, "Why don't you find out what the other staff members think about this?"

Thus, the two messages differed substantially in content and in form of transmission, and the second carried an implicit directive to the input subjects to disseminate it.

4. *Measuring Diffusion*

Three days after the principals had passed on the information to the selected input subjects, a questionnaire form was distributed to faculty members in each of the four schools. The form presented the message in a box near the top, and the respondent was asked to check whether or not he had heard all or

part of the message from anyone in the school. He was also asked to write in any similar information he had heard that was a variation on the original message. Those staff members who indicated that they had heard the information were asked to indicate when they had heard it, from whom they had heard it, and to whom they had passed on the information.

Diffusion rate for a school was computed simply as the per cent of teachers in the faculty, excluding the input subjects, who indicated that they had heard all or part of the message within the three-day period. The number of staff members to whom a given input subject relayed the message was computed from the teachers' reports concerning the source of their information. In the few instances in which information from an input teacher was relayed by a second teacher to still another teacher, the dissemination was attributed to the initiating input teacher. Only one case occurred in which two input teachers relayed the information to the same staff member.

C. Results

Table 2 shows the diffusion rates for the two messages in the high- and the low-saturation schools. With respect to the first message, no diffusion whatsoever occurred in the high-saturation schools within the three-day period, but it reached 12 per cent of the staff in School D and 19 per cent of the staff in School G—both low-saturation schools. Clearly, the first message did not "go." It was largely this circumstance which led the investigators to repeat the experiment some weeks later.

TABLE 2
Diffusion Rates for Two Messages in High- and Low-Saturation Schools

Saturation level	School	Diffusion rate	
		Message 1	Message 2
High	A	.00	.00
High	C	.00	.09
Low	D	.12	.70
Low	G	.19	.90

Note: When information items 1 and 2 are combined, differences between high- and low-saturation schools are statistically significant at the .01 level of confidence on the basis of chi-square, using the Yates correction factor.

Incidental observations in the schools suggested that the input subjects might have hesitated in passing on information contained in the photographer's letter to the principal, believing that it was a relatively confidential matter which was up to the principal to disseminate. The second message was altered, as indicated above, to include a stronger suggestion from the principal that the

input teacher pass the information along to others. In any event, to the extent the first message was disseminated at all, its diffusion rate was greater in the low-saturation schools than in the high-saturation schools. By use of the chi-square test corrected for continuity, differences between high- and low-saturation schools were significant beyond the .10 level for Message 1.

The second message, on the whole, reached considerably higher proportions of the school faculties. But as Table 2 indicates, substantially higher rates of diffusion again occurred in the low-saturation than in the high-saturation schools. No diffusion occurred in School A and only 9 per cent diffusion in School C, while 70 per cent and 90 per cent diffusion occurred in the low-saturation School D and School G, respectively. The differences were well beyond the .01 level in statistical significance.

Not only did the data fail to support the first hypothesis but they contradicted it. It was the low-saturation schools with poorly articulated patterns of interaction in which the messages from the principal diffused most readily.

The data tabulations supported the second hypothesis regarding differences in information relay among input subjects who varied in the span of their contacts. When the number of relays attributed to input subjects for the two

TABLE 3
NUMBER OF MESSAGE RELAYS AMONG HIGH-, MEDIUM-, AND LOW-SPAN INPUT SUBJECTS, MESSAGES 1 AND 2 COMBINED

Span	No. of subjects	No. of relays
High	4	28
Medium	4	7
Low	4	5

Note: Significant beyond .01 level by the chi-square test with 2 *df*.

messages across schools is combined, it is apparent that the greatest number of relays was contributed by teachers with the high span of regular communication contacts (see Table 3). Differences between medium- and low-span teachers were insubstantial, but a chi-square test showed the entire distribution of frequencies to exceed chance beyond the .01 level of significance with two degrees of freedom. Separate tabulations for the two messages indicated that the pattern was consistent in each. It should be noted, however, that these results apply principally to the low-saturation schools since few relays of information occurred in the high-saturation schools among either high- or low-span input subjects.

D. Discussion

The diffusion data, then, contradicted one hypothesis but supported the second. Both hypotheses had been derived from the same underlying proposi-

tion: namely, that the regularized patterns of interaction among staff members serve as channels through which specific items of information pass. While the data showed that those teachers with the greatest number of communication contacts were the most likely to relay the messages they heard, it did not follow that those staffs in which the patterns of contact were most highly articulated were the ones in which the information diffused most fully.

Several lines of *post-factum* analysis were pursued to justify these inconsistent results but without full satisfaction. The communication-structure data were examined, for example, to determine whether or not high- and low-saturation schools differed in the extent to which interaction patterns tended to follow subject-matter specialties—a condition which might suggest that the faculties did not share a "community of interest," in Allport and Postman's terms (1). The schools did not differ in this respect.

The most reasonable explanation of the findings requires a shift in perspective concerning the substance of the study. While the investigators had formulated the research problem in terms of the downward flow of administrative information, it could equally well be conceived as a study of rumor circulation. The nature of the messages and the circumstances of their transmission lend themselves to this view.

The research of Allport and Postman suggests that rumors circulate most freely where people have little veridical information about matters of importance to them (1). Low-saturation schools may be precisely such places. Faculties which do not have well-structured systems of interpersonal communication are likely to be uninformed about matters of personal concern to them in their work; isolated from their colleagues with whom they would otherwise share their gratifications and frustrations, such faculty members are likely to have mounting anxieties (9). In this way, poorly articulated interaction patterns in a high-school faculty may be causally productive of insecurity and personal tension among the members.

Similarly, the degree of saturation may be symptomatic of a general marginality among the staff with respect to their teaching careers and malaise with respect to their work situations. While no systematic data were collected, it was the investigators' impression, based upon extended acquaintance with the high schools prior to the study, that a discernible difference existed in the state of staff morale between the high- and the low-saturation schools. The work climate in the high-saturation schools seemed to be business-like and spirited, fostered by administrative officers who were personally congenial and considerate of the teaching staff. Faculties of the low-saturation schools, on the other hand, appeared to consist of teachers less dedicated to their teaching situation

and less intrinsically motivated by their work; the principals seemed to be more remote from their staffs and relatively uninterested in the personal concerns of the teachers.

The foregoing observations, it must be emphasized, were strictly impressionistic. Indeed, the investigators' reinterpretation of the study in the light of the findings is an exercise in after-the-fact explanation with all the hazards it entails. While it renders consistent the otherwise inconsistent results, the test of the explanation must rest upon systematic data obtained in a fresh study.

The present investigation pointed up one feature of the communication process which justified the investigators' hesitancy to extrapolate findings uncritically from the behavioral sciences to the educational setting. It became clear that the nature of the role relationship between the message initiator and the message recipient was of critical significance for the dissemination process. For one thing, in the school situation where the initiator is the principal and the teacher the recipient, the transmission of information assumes a kind of authoritativeness that is missing when it occurs among peers. Pains had to be taken in fabricating the experimental messages to protect that authority. For another thing, the division of labor in the school is such that it is the principal's business, not the teacher's, to apprise staff members of information relevant to their work. It seemed to require a kind of delegation of responsibility by the principal—"Why don't you find out what the other staff members think about this?"—to induce input subjects to relay the information, and even then it was not entirely successful. In this sense, the principal may have been violating the terms of his role in asking the teachers to do his job for him. Thus, formal work organizations may impose conditions on the process of information flow that are absent in the situations most commonly studied by social psychologists.

E. Summary

Four secondary schools in the metropolitan area of St. Louis County, contrasting in the degree of articulation of communication contacts among their teaching faculties, were chosen for testing two hypotheses: (*a*) the greater the articulation ("saturation") of staff contacts, the greater will be the diffusion of an item of information transmitted informally from the principal to teachers; and (*b*) the greater the number of communication contacts of a given staff member to whom information is transmitted by the principal, the greater will be the number of staff members to whom he will relay it. A message was fabricated by the investigators and, through the cooperation of high-school principals, transmitted in each school to three teachers, varying in

the number of their communication contacts. Three days later, a questionnaire form was distributed to all teachers to measure the extent to which the information had diffused among them and to discover from whom they had received the information. The experiment was repeated two weeks later with a different message.

The results showed that, contrary to the first hypothesis, greater diffusion occurred in the low-saturation schools than in the high-saturation schools but, in accordance with the second hypothesis, the number of relays of information was a direct function of the input teacher's span of communication contacts. The investigators suggested that the incongruous findings could be explained if school differences in the degree of saturation of communication bonds were interpreted as reflecting the level of morale and, inversely, the extent of anxiety within the faculties. Low morale and high anxiety level constitute fertile conditions for rumor circulation. The investigators noted that processes of information flow may take on different characteristics in formal organization setting than in informal group settings. The role relationship between administrative officers and operating personnel may allocate to the former the legitimate and, perhaps, exclusive responsibility for the dissemination of work-related information, hence constraining the otherwise spontaneous circulation of information.

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JAPANESE VS. AMERICAN VALUES*

Department of Psychology, Rutgers, The State University

F. K. Berrien

A. Introduction

Japan is the most Occidental of the Oriental countries. The multistoried buildings of Japanese cities, their elevated traffic lanes, Western clothes, American movies, electrical appliances, and high rates of juvenile delinquency bespeak a cultural kinship with the West. The casual tourist to the metropolitan areas of Tokyo, Osaka, Nagoya, or Sendai—coming with the expectation of savoring the exotic flavors of the Orient—may be disappointed by the absence of rickshaws and the presence of taxis running in packs from one traffic light to the next.

The quiet, mysterious serenity of the Orient is no more true of the foregoing cities than it is of Sunset and Vine, Times Square, or the Chicago Loop. On a visit to any of the major industrial plants—Sony Electronics, Suntory Distillers, or Canon Camera—one finds highly automated equipment matched with assembly-line procedures not essentially different from their competitors on the eastern side of the Pacific. In the libraries of the leading universities, half or more of the current journals and magazines are English-language publications. The national government is organized under a constitution bearing the clear stamp of Anglo-American political theory and democratic assumptions.

While these signs point toward a major rapprochement with Western culture there remain in Japan important remnants of older traditions that stand in sharp and glaring contrast. Perhaps the most eye-catching of these are the Shinto shrines and Buddhist temples, numbering more than 6,000 in Kyoto alone. But beneath the surface, the mark of tradition is even more evident. College students, even though exposed to Western literature, show a pattern of personal values essentially Oriental. Blue-collar workers operating in a mass production technology of Western origin prefer the master-servant relationships of an earlier handicraft era. Municipal government, although nominally decentralized and relatively autonomous, shows signs of a feudal-like dependence upon the national government for guidance and authority. Traditional

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psychological views appear to be carried by a culture that has outwardly turned Western.

In brief, the foregoing are the findings of seven independent studies recently completed. They compare Japanese and Americans on parallel issues by the same methods and by tapping population samples that are similar in the two countries (1, 2, 3, 4, 6, 7, 9). These seven reports have in common data from both Japanese and American populations and, for that reason, provide a base for direct comparisons that are not possible in many other insightful and provocative studies. In addition, all of the studies are of recent date and tend to converge in the main thrust of their conclusions. The convergence involved is remarkable because the data come from different Japanese sources and have been analyzed from different points of view.

Whitehill and Takezawa (9), for instance, submitted 30 questions pertaining to management-labor relations to Japanese and American blue-collar workers in plants representing four major industries—textiles, glass manufacture, steel, and electrical equipment. McGinnies (6) tested the attitudes of Japanese and American college students toward each of 15 civil liberties issues. Berrien, in his 1963 study (3), compared the organization of volunteer fire-protection units in Japan with a sample of comparable units in the United States. In his 1964 study, Berrien (4) contrasted the value patterns of high school and college students on a standardized personality schedule. McClelland's need-achievement measures have covered 30 different cultures but, for the purposes of this paper, his data comparing the Japanese and Americans will command attention. Arkoff, *et al.* (2), using a measure of deference-dominance, compared Homeland Japanese, Japanese-Hawaiians, and Caucasian Americans. His earlier study (1), using the Edwards Personal Preference Schedule, contrasted Mainland students with Japanese-Hawaiians. In each of these studies, the measuring devices were the same for both cultures and involved only those adjustments in translations and other features necessary to render the observations as nearly as possible free from artifacts.

B. Deference

One aspect of the Japanese stereotype held by Americans (and supported by prewar cultural descriptions) is the great deference shown to persons of high rank and status. Prior to World War II, the Emperor not only was a person to whom one bowed deeply but also one on whose face no ordinary Japanese would dare to gaze. At all levels of society, there existed not only respect for one's ancestors long since dead, but a more profound veneration of one's immediate living elders. Deference was shown to older and higher status persons as

well as to their ideas, suggestions, commands, etc. It was this characteristic of the Japanese that permitted the development of the unique form of authoritarian feudalism that persisted even beyond the Meiji Restoration of 1868. In contrast with the authoritarian regimes of Western Europe, the Japanese by and large accepted the concept of hierarchy as right and just—believing that those at or near the top of the pyramid were entitled to exercise control over those at or near the bottom. The circulation of the governing elite was not a condition that either top or bottom considered appropriate. Each had a station in society to maintain and it was not only right but proper to abide by the codes of that station.

How do the Japanese of the 1960s stack up on deference? Arkoff (1) found second-generation Hawaiian-Japanese to be more deferent than the third generation; and the latter, more deferent than American college students. In other words, the longer the Japanese have been exposed to the culture of Hawaii[1] the more closely they approximate the American norms, which call for less deference than the second-generation Japanese expressed. Arkoff's study confirmed the stereotype.

Berrien (4) and McGinnies (6), however, present data that on the surface, at least, raise question as to whether, in 1963, Japanese college students were as respectful of elders and authority as had been supposed. Berrien reported that Japanese students of both sexes were *less* deferent than were their American counterparts. McGinnies reported that members of the sample of Japanese college students he tested were more disposed toward civil liberties (freedom to criticize government, avoidance of press censorship, etc.) than were American students. These findings imply at least that Japanese youth were oriented away from the submissiveness and the acceptance of authority that characterized an earlier generation and, in those respects, have "surpassed" Americans. Persons intimately acquainted with the Japanese have suggested that (especially among students) there exists a faddish preoccupation with rejecting tradition and (what in Japan are often called) feudalistic concepts.[2]

The rejection appears to be more vocal than behavioral and bears some resemblance to the radical liberalism that periodically sweeps American college campuses. In America, it is a common observation that extremely liberal stu-

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[1] Although more American than anything else, the ways of life in Hawaii are not what one could call a common denominator of Mainland, U.S.A.

[2] The author is indebted to Professor Shin-ichi Takezawa of Rikkyo University not only for this interpretation but for calling attention to the frequent use of the term "feudalism" in current Japanese writing and conversation—a reference that suggests an awareness of the short history separating contemporary Japan from a type of society long since left behind in the West.

dents often gravitate toward more conservative views as they attain maturity and establish themselves in their communities. It is possible, therefore, that the lower deference and greater concern over civil rights observed in the Japanese students is not characteristic of the adult population as a whole.

This inference is supported by the observations made by Vogel (8) during a year of close acquaintance and study of a suburban Tokyo neighborhood. He says:

> In comparison with American standards, they [adults] still are very humble before officials and still regard encounters with them as trying experiences. From their point of view, the manner in which government bureaus operate depends in part on the whim and disposition of the officials. The applicant's strategy is to get on the official's good side and win his favor. The applicant will smile when angry and reply pleasantly to brusque remarks (8, pp. 95-96).

Answers to one of the 30 questions asked by Whitehill and Takezawa of 2,000 blue-collar workers in both United States and Japan likewise confirms the view that the Japanese retain considerable deference toward high-status persons. See Table 1. Deference in the instance cited is not confined to one's

TABLE 1
ANSWERS TO THE QUESTION "IF MY IMMEDIATE SUPERVISOR ENTERS A CROWDED BUS ON WHICH I AM RIDING I SHOULD:"

Answer	Per Cent	
	Japan	United States
"remain seated and offer to hold any package he may have."	41	33
"always offer him my seat since he is my superior."	10	2
"offer him my seat unless I am not feeling well."	44	2
"remain seated; since the fair rule is 'first come, first served.'"	5	63
Total	100	100

work relationships but carries over into the nonwork situations to a much greater extent in Japan than in the United States.

C. HIERARCHY

The other side of the deference coin is the great dependence upon hierarchies which the grass roots of Japanese society have shown in the past. For white-collar workers, lifetime employment within a given company has been the rule rather than the exception. Japanese business management has been described

as being full of warmhearted paternalism. Even today, the prevailing custom is to reward workers for their loyalty rather than for their competence. The invididual who has a poor service record or who has committed some blunder injurious to the company will not be dismissed except for the most flagrant and deliberate mistakes. By and large, management takes the attitude that the employee's contributions throughout his tenure are likely to outbalance whatever bungling he may generate. Moreover, company secrets may be leaked to competitors via the exit of employees; hence there is a reluctance to discharge a man who, in his turn, has pledged himself to his employer with a reciprocal assurance that he will advance in a regular and largely predictable way. The net psychological result of this permeating custom, especially at lower levels, is to generate a great dependence upon the next higher level for direction and guidance and an accompanying reluctance to take initiative with respect to one's own sphere of responsibility.

This dependence upon hierarchy shows up in a number of the Whitehill-Takezawa questions but especially in one that relates to the extent to which a supervisor should serve as a go-between in selecting a marriage partner for one of his subordinates; and in a second, that pertains to the expectations workers have that an employer should supply housing. Answers to both questions show greater dependence among Japanese than among American workers.

Perhaps, in the selected studies, the most obvious evidence of dependence on hierarchy comes from Berrien's study of the village volunteer fire companies (3). Fire protection is clearly a local problem and one that is more serious in Japan than in the United States because of the density of housing and the highly inflammable character of the construction. In the United States, volunteer fire companies have been organized by a few men who take the initiative to raise funds, to buy equipment and to find suitable garage space. As the companies grow (through their own efforts), no central agency specifies their size or the kind of equipment that they should purchase. These matters are determined by local assessments of local needs and resources.

In Japan the situation is and was far different. At the national level, the Ministry of Home affairs (sometimes translated as the Ministry of Autonomy) had within its complex the National Fire Advisory Agency. This agency administered a set of standards that each community was expected to meet with respect to the number of nozzle units, pumps, and men. A formula has been devised into which one inserts the density of population within a village, the per cent of inflammable buildings (most villages have some ferro-concrete structures), and the annual wind velocity. The index obtained indicates the number of men, nozzles, and pumps the village should have. Although the Na-

tional Fire Advisory Agency had no legal means for forcing compliance with its standards, considerable informal influence is exercised via a hierarchy of Prefectural offices. Moreover, the village officials appear to welcome such standards as guides for their own decisions. Although the village fire companies are "volunteer," in most cases they are fully supported by the municipal budgets and were organized by the municipal government. Moreover, the fire company chiefs are usually chosen from among prominent businessmen or politicians and *not* from the rank-and-file members. Volunteer chiefs in the United States typically rise from the ranks after having demonstrated both their leadership ability and knowledge of fire protection. This comparison between U.S. and Japanese village organizations dealing with a common problem suggests that the Japanese organizations exhibit both in structure and operation a subservient dependence upon higher levels of authority.

D. Achievement and Aspiration

Three studies bear upon the achievement motive. In 1961, McClelland (7) reported on his measure of need achievement, based on the analysis of children's stories drawn from 33 nations. Japanese stories had a mean standard score of —.95, while American stories had a mean standard score of + .32. These means indicate that the Japanese were considerably below the "world average," while the Americans were above.

Arkoff's study of two generations of Japanese in Hawaii (1) showed a steady progression in achievement scores based on the Edwards Personal Preference Schedule. Third-generation Hawaiian-Japanese had higher scores than did second-generation Hawaiian-Japanese. Mainland American students had higher scores than did third-generation Hawaiian-Japanese. These data clearly showed an acculturation process moving the Japanese from low aspiration levels toward levels more characteristic of American students. Berrien's study of Homeland Japanese on this same dimension (4) showed even lower scores than those registered earlier by Arkoff on the second generation of Japanese-Hawaiians; hence, on the basis of these three independent efforts, it appears reasonably certain that Japanese students do not value achievement to the same degree as do their American counterparts.

On the surface, these empirical results do not conform to the stereotype that many persons have of the Japanese. Have the Japanese not, as a nation, made a remarkable recovery from the devastation of World War II and achieved respected economic and cultural stature in the family of nations? How could this have happened if large numbers of them had not had a strong need to do an outstanding job, to achieve recognition for their own efforts, and to become known as the most expert in one's own field?

The measures of achievement motivation on which all three studies were based emphasize individual achievement and becoming eminent apart from and above one's fellows. One must distinguish between individualistic achievement and the collective achievement brought about through one's sense of obligation and duty to his immediate family or work group. Goodman (5) has shown that, in their essays, Japanese children emphasize the latter more than do American children who instead speak more frequently of their rights, self-fulfillment, self-satisfactions, and self-expression. It may be that loyalty to one's group, the obligation one assumes toward his employer, the salience of duty, and an intense patriotism (also evident in children's stories) may account for the rise in the standard of living and the prodigious expansion of Japan's industrial economy. For the Japanese, it is perhaps more important that the work group or company prosper than that an individual outstrip his peers. In addition, the postwar emphasis on egalitarianism has led to the belief that it is antidemocratic to achieve beyond one's associates.

E. Endurance

The Japanese have long been noted for their willingness to work long hours and to endure privation stoically. Berrien's 1964 results (4) bear out this characteristic. Japanese students (both men and women) scored higher on endurance than did American students. Japanese students preferred to work late into the night and preferred to avoid distractions that might interfere with the accomplishment of their tasks once a job had begun. They liked to complete one job before taking on another.

One of Whitehill-Takezawa questions bears on both the question of endurance and loyalty to one's group. It is given in Table 2.

The most interesting contrast appears in the last three alternatives. More than one-half of the Japanese place work equal in importance to personal life

TABLE 2
Answers To the Question "I Think of My Company as:"

Answer	Per Cent	
	Japan	United States
"strictly a place to work and entirely separate from my personal life."	8	23
"the central concern in my life and of greater importance than my personal life."	9	1
"a part of my life at least equal in importance to my personal life."	57	23
"a place for me to work with management, during work hours, to accomplish mutual goals."	26	53
Total	100	100

nearly one out of every 10 assigns work greater importance. This result points in the direction of a greater tolerance for work (remember, these were blue-collar workers) than was evidently true of Americans engaged in comparable activities. The data further reinforce the inference that the economic achievements of Japan are understandable in terms of the collective energies of the population, while simultaneously submerging individualistic needs in the service of one's employer. In these respects, the Japanese appear to be retaining one of the traditional values that accounts in part for the phenomenal modern recovery of the country.

F. Interest in and Commitment to Community

In the summer of 1963, a Tokyo newspaper account described the development of clean-up squads in a number of designated areas. These squads consisted of "volunteer" women who were recruited on orders from the Prefecture Government to supplement the regular street-cleaning services. One cannot place great weight on this incident to support any significant inference, but it illustrates the low level of nurturance and high level of autonomy found in Berrien's survey of student values (4). That is to say, Japanese students (as compared with Americans) were less inclined to be of help and assistance to their neighbors, acquaintances, or friends. Furthermore, except for the family or work groups, which are often tightly knit, the Japanese preferred to exercise a high degree of independence and restrict their enduring interpersonal relationships to a small circle. Kurt Lewin might have described this condition as a restriction of life space.

The fact that clean-up squads had to be recruited in *designated* areas on *orders* possibly reflects (*a*) an acute litter problem and (*b*) the absence of local initiative. Both of these conditions could be the consequence of a limited interest in and concern for matters outside the garden wall: an expression of high autonomy and low nurturance. One of the striking characteristics of the villages and smaller cities is the juxtaposition of neatness and rubble. A well-cared-for garden and home may be adjacent to a dump. There appears to be a steep negative gradient of interest in and concern about matters that exist beyond one's narrowly defined personal sphere. Just outside the garden wall, the drainage sewers may become clogged, the street lights may be inoperative, a discarded box may be a hazard on a side street—but no one feels responsibility to pick up the box or report the clogged drain to the local officials. This is not to say that the Japanese are self-centered, but rather that the evidence—from both the student survey (4) and the easily seen signs of community neglect—suggests that the Japanese possess a highly circumscribed boundary of personal

involvement limited to the family and (for the men) their work associates.

In part, the high autonomy and low nurturance features of the Japanese may be handicaps to the future development of a democratic society after the pattern of the West. One of the features of Western democracy is the relatively high degree of personal involvement in local as well as national affairs. To no small degree the strength of the democratic process lies in the autonomy not only of individuals but of local community organizations (political clubs, community betterment associations, the PTAs, the business men's service clubs, churches, etc.) which focus attention on and take action with respect to local needs. Such organizations (except PTAs) do not appear to have taken root in Japan partly, it is suspected, because the fundamental personal values are not congruent with such activities.

G. Self-Abasement

Perhaps one of the most glaring contrasts between Occidental and Japanese values is the tendency of the latter to be humble and self-abnegating, particularly when confronted with some error in judgment or action. This tendency sometimes takes (what seems to Americans) an extreme form. For instance, the Minister of Home Affairs, responsible for public safety resigned his post following the stabbing of U.S. Ambassador Edwin O. Reischauer by an emotionally disturbed youth, in March 1964. In the earlier era, harakiri was the honorable way of atoning for one's failure to discharge his duties properly.

The Japanese still express their self-abasement in less dramatic and extreme ways in a variety of situations. Another of the Whitehill-Takezawa questions, given in Table 3, shows the contrast between American and Japanese value orientations. Although the vast majority of both Japanese and American workers select the third alternative, the first two alternatives (which reveal self-

TABLE 3
Answers To the Question "If You Feel Your Rate of Pay is Unfair, the Best Way for You To Get Satisfaction in the Long Run Is To:"

Answer	Per Cent	
	Japan	United States
"show patience and confidence in management by not voicing your complaint."	18	4
"ask a senior worker to serve as a go-between in voicing your complaint."	15	1
"voice your complaint through your supervisor or union."	63	88
"go directly to the personnel department."	4	7
Total	100	100

abasement) were selected by one-third of the Japanese and by only five per cent of the Americans.

Among college students Berrien (4) found significantly higher scores for Japanese than for Americans on the abasement dimension. Translated into descriptive terms, the differences mean that Japanese—more than Americans—(*a*) accept blame personally when things go wrong, (*b*) feel inferior to others, and (*c*) feel better when they give in to avoid a fight rather than force their own way. It is of interest that Arkoff's study of 1959 (1) showed a steady downward progression of abasement scores from the second generation to the third generation of Japanese-Hawaiians and to Mainland Americans. This trend is clear evidence of an acculturation process and supports the validity of the abasement differences reported by Berrien between the Japanese and American students, which differences were greater than those found by Arkoff in Hawaii. This self-abnegation coupled with the deference toward higher status persons would seem to inhibit both the circulation of ideas and of men up and down the hierarchical structure, except insofar as those at the top remove themselves (as in the case of the aforementioned Minister of Home Affairs) and provide for replacements. In combination, the foregoing personal values may account for the ease with which those at the top of the hierarchy have been able to govern and control the great teeming population.

H. Conclusions

The studies reviewed in this article portray the Japanese in comparison with Americans as being more deferent, more respectful of and dependent upon high status persons, more self-abasing, and more willing to work long hours. Individual aspirations appear to be less important than the achievements of work groups. The boundaries of their interests and concerns are more limited than seems to be true of Americans, but their loyalty to family and work is greater.

It is evident that the external signs of Occidental influence and the political democratic structures established by the postwar Occupation are not matched by internalized values, which many believe are a bedrock upon which a democratic society rests. If large groups of a population accept unflinchingly and uncritically the directives that come from above and in turn believe it unseemly to initiate actions to deal with local problems, or proper to offer their wisdom to higher status persons, then one could not expect such a society to function democratically. It may be a mark of ethnocentricity for Americans to suppose that the value orientations of persons who express their individuality, who are mobile up and down the political and social hierarchical ladder, who debate the issues of the local and national community and who take actions to

correct community problems are the value orientations that support the democratic process. Perhaps Japan can evolve a kind of democracy that is comparable but not identical with that in America, based upon the unique personal values outlined. On the other hand, those values appear to be different in no important way from those that seem to have characterized the Japanese at least as far back as the beginning of the Meiji era (1870) during which time existed a series of governments characterized by a high degree of central absolute authority resting primarily in one man or in an oligarchy. Some straws in the wind not revealed in the studies reviewed point toward a return to greater central control as Japan is less and less influenced by Occupation reforms. It is trite to remark that Japan is in transition, for the same may be said of nearly all societies. Japan, however, appears to be standing on a watershed on one side of which lies the course toward greater central (and perhaps autocratic) control. On the other side is the path toward greater local autonomy, initiative, and responsible criticism of elected officials. Nominally Japan is democratic, yet it retains many well ingrained personal values that appear to contribute to the traditional, nondemocratic prewar social patterns.

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THE DISCLOSURE OF SELF IN THE UNITED STATES AND GERMANY* [1]

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STANLEY C. PLOG

A. INTRODUCTION

Shortly after his immigration to the United States, Lewin described his impressions of important personality differences between German and American national-character types (16). Using concentric circles as a schematic representation of personality, Lewin pictured the area between the two circumferences, which has an outer boundary of a thin and permeable line, as the region of personality that permits free social interplay, open public conversation, and willingness to reveal one's thoughts and feelings to others. In contrast, the inner circle is contained by a firm boundary line to protect that region of personal life that one is not willing to expose to others. For the American personality, the distance between the inner and outer circles is great, suggesting that Americans are willing to discuss a variety of topics or subjects with many people, even revealing themselves at times to casual acquaintances or total strangers. The smaller distance between the inner and the outer circles of the German personality suggests there are fewer personality regions open for public social interplay, with more of the personality kept unrevealed to all but a few intimate friends. As Lewin reported:

> The average "social distance" . . . between different individuals seems to be smaller in the United States so far as the surface regions, or as one may say, the "peripheral regions" of the personality are concerned. That

* Accepted by Gardner Murphy of the Editorial Board, received in the Editorial Office, Provincetown, Massachusetts, on August 3, 1964, and given prior publication in accordance with our policy for cross-cultural research.

[1] The research reported here is a revision and extension of a paper read at the annual convention of American Psychological Association, August, 1963, Philadelphia, Pennsylvania, on the symposium "The Transparent Self." Appreciation is due to many persons who have made this cross-cultural research possible, including Professors Gordon W. Allport of Harvard University, David Cole of Occidental College, Philip Daniels of Brigham Young University, Olaf Millert of St. Olaf's College, Raymond Murphy of UCLA, the University of California at Los Angeles, Wolfgang Brezinka of the University of Innsbruck, Adolf Däumling of the University of Munich, and Peter R. Hofstätter of the University of Hamburg, all of whom helped to obtain research samples. Also, appreciation is due to John Mansfield and John Tinker, who helped to develop appropriate statistics, and to Dr. James Bryan and Dr. Norris Weinberg for a critical reading of the manuscript.

> means the American is more willing to be open to other individuals and to share certain situations with other individuals than the German.
>
> Quite commonly strangers on the street may greet one another with a smile, a behavior unusual in Germany. People waiting for the bus may start to discuss the weather, and in the train, conversation between strangers starts more easily than in Germany.
>
> The American seems to have decidedly less need for privacy in certain regions of life. It is possible to find the office door of even a president of a college open all day; so everybody can see with whom he is conversing and in what manner he is acting. Such behavior would be unthinkable in Germany even for an unimportant official, one of whose techniques in getting respect and showing his importance is to let people wait a long time in front of his closed door (16, pp. 280-281).

Recently, new techniques for measuring the variables described by Lewin have appeared under the titles of self-disclosure (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15), social accessibility (18, 19, 20), and verbal accessibility (1). The term self-disclosure, which is used by Jourard, seems to be the most appropriate because it implies that, though environmental conditions may vary, decisions about the amount of information to be revealed are always made by the self. Self-disclosure is defined herein as the willingness to reveal information about the self to any person in one's environment.

The purpose of this paper is to examine, in a contemporary setting, the validity of some of Lewin's assumptions about German and American national differences. Three hypotheses are put to test.

1. In cross-cultural comparisons, American men and women are more willing to reveal information about themselves on a variety of topics and to a variety of persons (targets) than are German men and women.

2. Within each culture, however, there is no significant difference in the total self-disclosure scores of men and women; that is, American women are not significantly different from American men in their willingness to reveal information about themselves to others, and German women are not significantly different from German men in their willingness to reveal information about themselves to others. The assumption is that culture is an important determinant of self-disclosure, but that sex differences—at least in the two cultures under study—are slight.

The folklore of most Western cultures suggests that women are more loquacious than men. However, a corollary of this behavioral description also suggests that men are more willing to talk about particular topics than women (politics, sex, personal conquests, etc.). A self-disclosure test that samples a broad range of topics, such as used in this research, should produce

total self-disclosure scores that are similar for both sexes, even if there is some topic or target variability. This point is in disagreement with the work of Jourard, but more will be said about this later.

3. German men and women are more variable in their mean self-disclosure scores on topics and targets than are American men and women. Underlying this third hypothesis is a further assumption that there exists a unitary need of persons (in all cultures) to be self-revealing with at least one significant other. In the case of Germans, reluctance to discuss all but insensitive topics with most friends and acquaintances (including parents) should result in a greater willingness to reveal considerably more information than otherwise to a close friend of the same or opposite sex.

B. Methods and Procedure

1. *The Research Instrument*

A 40-item test of self-disclosure was developed, with questions divided equally among eight topic areas as follows: (*a*) habits and interests, (*b*) political views, (*c*) interpersonal relationships, (*d*) views on morality and sex, (*e*) self-doubts and anxieties, (*f*) religious beliefs, (*g*) occupational goals, and (*h*) marriage and family.

Selection of topics was made after a review of existing tests of self-disclosure and by incorporating some of the six "dominant" values listed by Spranger (21). Respondents were asked to rate themselves, on a four-point scale, about their willingness to discuss material selected from the topic areas with each of several target persons: mother, father, close friend of the same sex, close friend of the opposite sex, older friend, and acquaintance. After each question, a grid was provided for the subject to record the degree of his willingness to discuss the particular topic with each of the six target persons. Split-half reliability of the test is .94 for American men ($N = 194$) and .89 for American women ($N = 218$). Translation into German was completed by a native-born German and was checked for accuracy by two other native Germans.[2] The only items retained in the final questionnaire were those for which it was possible to make accurate renditions in both languages.

2. *The Sample*

Four American, one Austrian, and two German universities and colleges cooperated in the study; and within each culture there was a deliberate attempt to include both large and small educational institutions from differing regional

[2] Dr. and Mrs. Rolf von Ekartsberg were primarily responsible for translation of the instrument into German.

areas. The American schools were the University of California, Los Angeles; Occidental College; Brigham Young University; and St. Olaf's College. The German-Austrian schools were the universities of Munich, Hamburg, and Innsbruck. The American sample principally is of students enrolled in upper-division courses in psychology and sociology. The German students were more variable in age and college background and included the equivalent of freshmen in college and some graduate students in the social sciences. Altogether, 412

TABLE 1
SAMPLE CHARACTERISTICS OF THE AMERICAN AND OF THE GERMAN AND AUSTRIAN SCHOOLS

School	Sex	*N*	Mean Age	Age Range
		American Sample		
University of California, Los Angeles	Men	16	18.81	18-21
	Women	22	18.68	17-21
Occidental College	Men	32	19.06	17-21
	Women	21	19.00	18-21
Brigham Young	Men	24	20.69	18-33
	Women	24	19.08	18-22
St. Olaf's	Men	18	18.83	18-20
	Women	23	20.26	18-29
Total	Men	90	19.39	18-33
	Women	90	19.26	17-29
		German-Austrian Sample		
Hamburg	Men	30	22.27	19-28
	Women	28	21.71	21-22
Innsbruck	Men	14	22.00	18-26
	Women	17	22.00	21-23
Munich	Men	46	22.46	18-38
	Women	45	22.49	19-35
Total	Men	90	22.32	18-38
	Women	90	22.15	19-35

American students and 270 German students were involved. All incomplete questionnaires were removed and excess cases were discarded on a random basis. The final sample, divided equally among men and women, consisted of 180 American college students and 180 German college students. Sample characteristics are specified in Table 1. Because of the nearly three-year age differential between the American and German sample, a t test was used on the original American sample (before rejection of cases) to determine if self-disclosure patterns were related to age. The difference was *not* significant.

C. RESULTS

Table 2 presents the results of a two-way analysis of variance using the error term suggested by Edwards (2). Nationality (main effect) is significant ($p < .001$); sex is not significant. Table 3 presents the results of t tests for

TABLE 2
ANALYSIS OF VARIANCE OF SUMMED SELF-DISCLOSURE SCORES

Source	*df*	*SS*	*MS*	*F*
Nationality (Germans *vs.* Americans)	1	20085.33	20085.33	43.8*
Sex (males *vs.* females, both cultures)	1	.23	.23	.0005
Remainder	1	304.67	304.67	.664
Within replicates	356	163249.22	458.56	

* $p < .001$.

TABLE 3
t TESTS OF HYPOTHESES 1 AND 2
(SEX AND NATIONALITY COMPARISONS)

Comparison	*df*	*t*	*p*
German males *vs.* American males	178	5.04	$< .001$
German females *vs.* American females	178	6.45	$< .001$
American males *vs.* American females	178	.727	n.s.
German males *vs.* German females	178	.688	n.s.

sex and nationality, within each culture and between cultures. As can be seen, Hypotheses 1 and 2 are confirmed. In degree of self-disclosure, there are strong cultural differences when German men are compared with American men and when German women are compared with American women or when sex groups are combined for total cultural comparisons (Hypothesis 1). Within either culture, however, there is no significant difference between the self-disclosure scores of men and women (Hypothesis 2).

To test Hypothesis 3, a variance ratio was developed by obtaining a grand mean on self-disclosure for each person, by computing for each topic and target the distance from the individual's grand mean (eight topics and six targets), and by summing to get a "variability" score for each person.[3] The

TABLE 4
ANALYSIS OF VARIANCE OF SUMMED SELF-DISCLOSURE VARIABILITY SCORES ON TOPICS AND TARGETS

Source	*df*	*SS*	*MS*	*F*
Topics				
Nationality (Germans *vs.* Americans)	1	17.89	17.89	.12
Sex (males *vs.* females, both cultures)	1	497.25	497.25	3.42
Remainder	1	500.18	500.18	3.44
Within replicates	356	51808.21	145.53	
Targets				
Nationality (Germans *vs.* Americans)	1	22.92	22.92	.23
Sex (males *vs.* females, both cultures)	1	847.92	847.92	9.38*
Remainder	1	162.67	162.67	1.80
Within replicates	356	32179.36	90.39	

* $p < .001$.

[3] I am indebted to Professor W. J. Dixon, professor of biostatistics, University of California, Los Angeles, for help in developing the variance ratio.

resultant F was not significant, however, so the hypothesis is not confirmed (Table 4). Thus, there can be no claim that there is a significant difference in variability of self-disclosure patterns between students in the United States and Germany. An unanticipated result (see Table 4) is that in both cultures there is a significant sex difference in variability scores, at least as such scores are related to target persons. The intratest reliability scores reported earlier indicate that women are more variable than men in their patterns of self-revealing.

D. Discussion

More than most theorists of his day, Lewin conceived of personality as enmeshed in a sociocultural system in which the important structural components of personality are determined by the particular cultural system in which the individual lived.

In view of the difficulty of testing most assumptions about national character, support for Lewin's concept of basic differences between the German and American basic personalities is important. Personality theory, useful as an heuristic tool, can often prove difficult either to validate or to put to a test. The problems become even more vexing when they involve cross-cultural comparisons. It is now nearly 30 years since Lewin's original article, and much has happened during the intervening time period to make persons of both nations more similar in many ways. Germany has been radically transformed by the devastation of a world war and the westernization that has accompanied the stationing of American armed forces on her soil. To an uninformed outsider, it might appear that the two cultures are becoming indistinguishable (as evidenced by the introduction of hundreds of German products into the American economy and by the tremendous impact on the German culture of American methods of advertising, ways of doing business, and political systems). Though overtly the peoples of the two nations may look more similar on the surface than they did two or three decades ago, it is important to note that some basic personality differences are being maintained. Only replicative research can answer the question as to whether or not the two peoples are becoming more alike.

The second finding of general interest relates to the lack of sex differences in disclosure scores within each culture. Lewin's initial article is much in the style of the studies of "national character" or "basic personality types" that became popular in the 40s and 50s; i.e., Lewin does not indicate whether one would expect to find important self-disclosure differences related to age, sex, education, social class, or to other variables that might account for observed

cultural differences. By not discussing such variables, Lewin seems to suggest that cultural differences are more important than variations that might be found within either culture. In supporting this implied conclusion, the results of the present research are at variance with the work of Jourard who has found that women consistently have higher self-disclosure profiles than do men (15). The difference of research findings can be explained partly by the fact that Jourard and this author developed separate instruments for measuring self-disclosure, but undoubtedly it is also related to differences in research samples. Jourard's work was carried on in the southern part of the United States (namely, Florida); while the present research represents a western and mid-western college population. However, pilot studies in Massachusetts did not reveal a significant difference between Harvard men and Radcliffe women. At any rate, the assumptions offered by Lewin appear to be strongly supported by this research.

The third hypothesis (not supported), which suggested cultural differences in self-disclosure variability, deserves a closer examination. For both nations, Figure 1 presents mean self-disclosure scores on topics. The profiles are

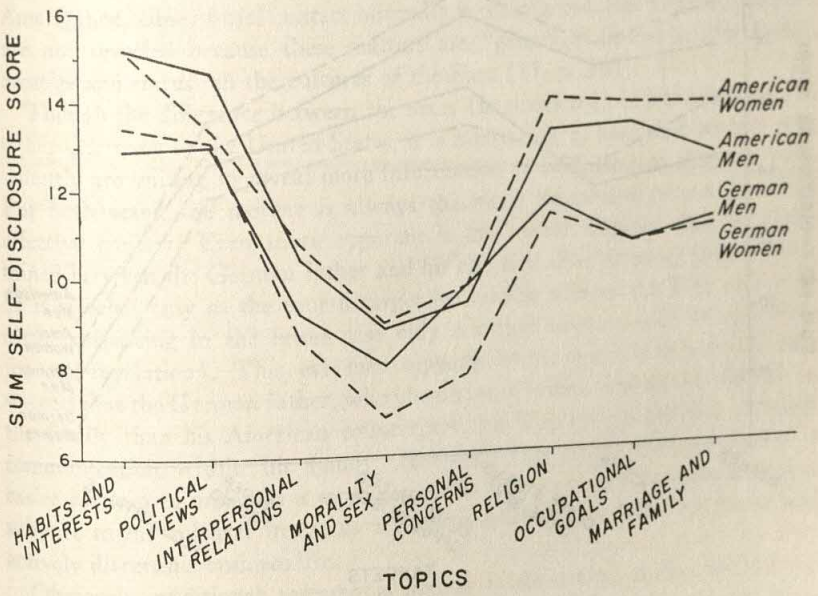

FIGURE 1
MEAN SELF-DISCLOSURE SCORES ON TOPICS FOR GERMAN MEN AND WOMEN AND AMERICAN MEN AND WOMEN

amazingly similar, with the exception that Americans consistently are more willing to reveal information about themselves to others than are Germans. In all cases, however, the high-disclosure topics are the same—habits and interests, political views, religion, occupational goals, and marriage and family—and the low-disclosure topics are similar—interpersonal relationships, morality and sex, and personal concerns. For all four research samples, the rank ordering of topics is almost identical; and the only reversals occur in those cases for which mean disclosure scores are very close. Thus, despite the fact that we have discovered cultural differences in willingness to reveal information about the self to significant others, there are striking and basic similarities at any level between the peoples of both nations in the kind of information they are willing to disclose. These basic similarities probably account for some of the reasons that persons of various cultures usually are able to get along quite well when given an opportunity for close interpersonal contact and that marriages between members of various national groups are often very successful.

Figure 2 presents mean disclosure scores for targets. The profiles are parallel

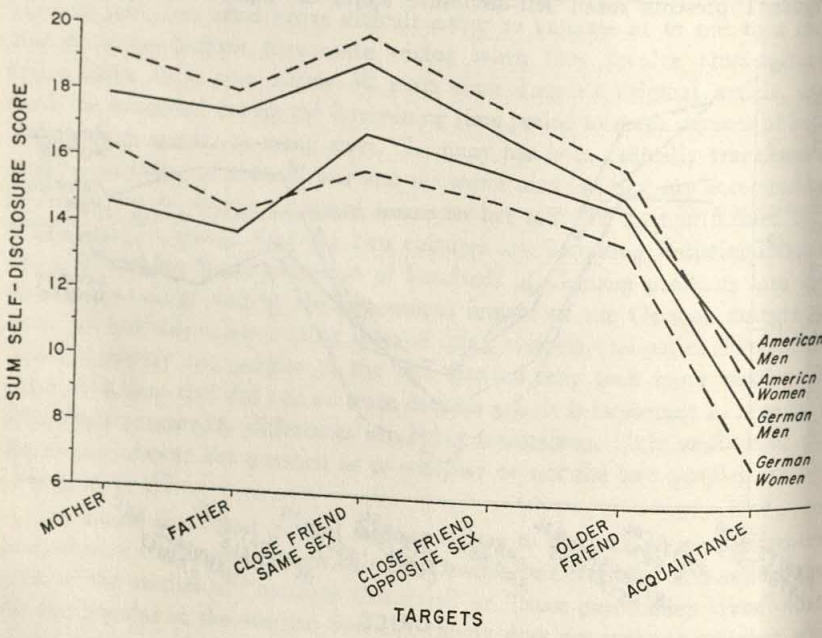

FIGURE 2

MEAN SELF-DISCLOSURE SCORES ON TARGETS (RECIPIENTS OF INFORMATION) FOR GERMAN MEN AND WOMEN AND AMERICAN MEN AND WOMEN

for American men and women—with a close friend of the same sex being the most important confidant; followed by mother, father, close friend of the opposite sex, and an older friend (in that order). As would be anticipated, little significant information is ever revealed to a casual acquaintance.

A similar profile is evident for German women, though they more often first choose as a confidant their mother rather than a close friend of the same sex. The only discrepant profile belongs to German men who would rather reveal problems or feelings to peers, both male and female, or to an older friend before approaching either parent. It would seem that this reversal of disclosure patterns is determined by the need of the male in a highly masculine and autocratic culture to appear independent of his home. This self-imposed isolation, however, results in an increased need for social intimacy with *einem Freund* to whom personal thoughts, problems, and feelings can be revealed in greater depth. This general pattern of intimate communication among peers of both sexes may be true only for persons of Western cultures. Melikian (17), using Jourard's questionnaire on a sample of 158 male students from the Middle and Near East at the American University in Beirut, found that there is a reluctance to be self-revealing either to a female friend or one's sister. Among men, closer social contact normally is maintained, but financial matters are not revealed because these matters are "generally linked to the family prestige and status" in the cultures of the East (17, p. 263).

Though the difference between the sexes (as predicted) is not significant in either Germany or the United States, it is interesting to note that women consistently are willing to reveal more information to both parents than are men. For both sexes, the mother is always the more important person for close affective contact. Even more apparent is the social distance that is maintained between the German father and his children. For personal information, he is selected only as the fourth target by women and as the fifth target by men (surpassing in the latter case only a casual acquaintance as an object for self-revelation). This evidence supports those descriptive pictures that suggest that the German father, who plays a more formal and dictatorial role in the family than his American counterpart, has also set up barriers to social communication within his family. However, this social distance makes it easier for him to maintain a more consistent role as a disciplinarian and adds support to his cultural image as a firm individual who rules his home and actively directs his business life.

Obviously, additional research is needed to determine if the findings reported in this paper will remain stable or will change in the coming years. It has been said that "more has been written about German national character

than about any other modern national group" (3, p. 1010). It is also true, however, that there is very little research to support most of the speculations, especially in cross-cultural settings. Cultural "base lines" for many personality variables need to be established so that rates of change within particular societies and between national population groups can be determined. After such base lines are established, we shall be able to look for the sources of changes and measure their effect on "basic" personality structure.

E. Summary

A 40-item test of self-disclosure was developed to examine the validity of Lewin's assumptions about basic differences in German and American personality types. The hypotheses were as follows:

1. American men and women are more self-revealing than are German men and women.

2. Within each culture, there is no difference between men and women in willingness to reveal self-information.

3. German men and women are more variable in their self-disclosure patterns than are American men and women.

Hypotheses 1 and 2 were confirmed, but Hypothesis 3 was not. Examination of the data revealed underlying similarities of personality, as indicated by the disclosure profiles, even though mean self-disclosure scores were found to be significantly different.

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A CROSS-CULTURAL COMPARISON OF SECOND-STRATUM QUESTIONNAIRE PERSONALITY FACTOR STRUCTURES—ANXIETY AND EXTRAVERSION—IN AMERICA AND JAPAN*[1]

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A. THE STATUS OF THE EXTRAVERSION AND THE ANXIETY CONCEPTS

In this article, the term "second stratum" rather than "second order" has been used here to specify the difference between a mere operation—order of factoring—and a conceptual level (the stratum at which the factor occurs) as defined recently by Cattell (8). A higher stratum factor is a source trait that contributes to the variance of several primary source traits and is thus broader in its influence than these.

Although various writers—e.g., Becker (2), Peterson (25), Eysenck (18), and Levonian (22)—have proceeded as if these broader source traits might be defined, and scales established for them from direct factoring of items, this procedure is demonstrably incorrect. The discovery of the true nature of second-order factors, such as anxiety (Eysenck's "neuroticism") and extraversion, depends on the uniqueness of rotation to simple structure of primary factors. It can be shown (8) that second-order factors have neither their own true patterns nor are they uniquely rotatable when attempts are made to obtain them through the supposed shortcut of factoring items as such.

Ever since the first vague delineation of the extravert-*vs.*-introvert polarity as "active-*vs.*-reflective" by Jordan, as "explosive-*vs.*-abstracted" by William James, and in more elaborate terms by Jung (21), it has remained a concept subject in definition to the whims of each writer. Consequently, as late as 1946 it was possible for Cattell (4) to call attention to the fact that what is now called exvia-*vs.*-invia had the status, technically, only of a surface trait or correlation cluster, which varies with the experimental sample of variables. But in 1955, Cattell isolated the trait simultaneously as a definitive *second-order factor among questionnaire primaries* and as a *first-order factor among objective (behavioral) tests*. The excellent agreement of the two approaches left little doubt that the central core in earlier extraversion concepts had been

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indeed a true second-order, uniquely definable factor, thus a nonarbitrary basis for its measurement became available. In 1961, Cattell and Warburton (17) demonstrated that the same second-order factor existed also in measurements at the child level, and they suggested that the term exvia-*vs.*-invia be applied to the *exact* dimension, leaving the popular writer the right to use extraversion—introversion as he might wish. The recent extensive collation and analysis, by Gorsuch and Cattell (19) with over 1600 cases, leaves no further doubt about the status of the exvia, anxiety, and other second-order concepts; and makes possible more precise weights than hitherto were available for the component manifestations in terms of which the levels of exviant and anxious individuals can be measured by questionnaire scales. Adcock (1a, 1b) has recently suggested some valuable hypotheses as to why the weights found for the primaries are as they are rather than otherwise.

As a second-stratum source trait, anxiety has a history of discovery closely allied with that of exvia-*vs.*-invia. It was in 1955 also that the second-stratum anxiety factor was first made determinate among primaries and, like exvia, it was simultaneously shown to align its axis (in joint Q-and T-data analyses) very closely with that of the objective-test factor for anxiety. Incidentally, the objective-test factors, first symbolized (to avoid premature interpretations) in the *Universal Index* of factors (6) as U.I. 24 (Anxiety) and U.I. 32 (Exvia-*vs.*-Invia), have since done much to help confirm the identification and bring out properties of the questionnaire source traits.

Unlike physical scientists, psychologists cannot assume that their measurements and concepts have the cross-cultural validity that the international character of science requires. An array of articles in this *Journal* has sought to further the discussion and testing of the cross-cultural validity of various concepts. Some dimensions, like intelligence or numerical ability, we may expect to see repeating themselves as cross-culturally identifiable factors, even though test batteries may need to be altered with modified factor loadings. Others may be local to space or time, maintaining a configuration only in a particular culture and only for a few years. Granted the general premise of a certain universality in the laws of human nature, the more basic personality structures (such as have been sought in the factor analysis of the personality sphere) might be expected to be among those that better retain their form recognizably across cultures. For this reason, it has seemed important to check as soon as possible upon the cross-cultural constancy of the form of major second-stratum factors, such as anxiety, exvia-*vs.*-invia, and some others, to be mentioned in this research.

B. Cross-Cultural Findings on Primary and Secondary Source Traits

Because the present inquiry is by no means the first of its kind, it is desirable to bring out the special characteristics and aims of the strategically interlocked series to which it belongs. The first systematic studies on the cross-cultural constancy or change of personality factors were those of Cattell, Pichot, and Rennes (14) on the French-English comparison of the 16 PF and of Cattell and Warburton (17) on the British-American comparison of personality structure in children's questionnaire responses. Comparisons have since been made on the 16 PF in Italy (13), in Germany (24), and in Japan (16).

In all of these cross-cultural comparisons, in terms of the personality sphere (represented in 200 to 300 carefully translated questionnaire items), the clear verdict so far has been that, at the primary-factor level, a very high degree of similarity of personality structure exists among these countries and cultures. Such factors as A, affectothymia-*vs.*-sizothymia; B, intelligence; C, ego strength; E, dominance; F, surgency; G, superego; H, parmia; etc., manifest themselves with patterns that show no demonstrably significant differences from one culture to another. On the other hand, for a few source traits (e.g., the dominance factor, E, in Italy; the surgency factor, F, in Japan; the ergic-tension factor, Q_4, in Germany) there are *indications* of interesting cultural differences of expression calling for further research.

The primary finding is one of essential similarity or constancy of basic personality structure (which, incidentally, is consistent with the long-recognized psychiatric fact that forms of mental disorder are very similar). The secondary finding is that, despite the foregoing, there are interesting and apparently significant differences of expression (factor loadings) on certain variables and significant differences on the factor level. However, even in a racial and cultural group so different as the Japanese, this primary similarity is the striking feature. Cattell and Tsujioka (16) recently demonstrated that the agreement of the Japanese sample with each of two American samples was no less than that of the two American samples with each other!

On the other hand, as just mentioned, the *levels* of populations in different cultures on these factors are remarkably different. For example, on the High School Personality Questionnaire (10), Butcher, Ainsworth, and Nesbitt (3) showed differences significant at the .01 level between British and American children on sizothymia (A factor), dominance (E factor), and superego strength (G factor)—the last being higher in Americans; while still greater

differences have been found on another constellation of primary factors (16) between Japanese and Americans. No justification would exist for comparing populations on common scales unless prior research had shown that the same general primary factors exist in the personality structure of both groups. The present article is a contribution to such preparation of the ground. Its authors recognize, however, that in a purely mathematical sense factors in two different populations cannot be exactly identical. They are the same only in the generic sense that, say, the stature of men can be compared, despite different body builds. In more refined studies, we may expect that the same raw scores on items will be put together with the weights independently determined in each sample, but equal weights should be an acceptable approximation meanwhile.

Although marked progress has been made toward cross-cultural comparisons at the primary-source-trait level, very little knowledge indeed has been gained at the secondary-source-trait level. Yet for various recent theoretical developments—e.g., for Cattell and Scheier's theory of the influences determining anxiety levels in cultures—information about second-stratum source traits becomes very important. At the moment of writing, a survey suggests that available, published data are in fact restricted to an article by Cattell and Warburton (17) on British-American comparisons on anxiety and exvia (extra-version) showing British children significantly more inviant and the book by Cattell and Scheier (15) showing comparisons of eight countries on the IPAT Anxiety Scale (26). The data meet the requirement of being expressed in a definitive, replicable simple-structure factor because the IPAT scale was constructed on the evidence of the second-stratum anxiety factor in the 16 PF, though (at that time) the factor had not been demonstrated except in Britain and America. The *implications* of the results, suggesting higher anxiety with poverty and with sharp crevasses dividing social and political groups, have been much debated (notably at the New York Symposium on "A Decade of Tranquillizers").

If social psychology is to develop theories based on more than casual observation, it is important that we develop these possibilities of meaningful cross-cultural population measurement to relate to the syntality dimensions of total group behavior (20). And since, for many busy investigators, the labor of obtaining full measurement on all *primary* source traits unfortunately seems sometimes impracticable, it would be advantageous to make available scales for the five confirmed secondary factors—anxiety, exvia, cortertia, independence, and shrewdness (19). Entering upon the construction, translation, and use of such scales becomes worthwhile, however, only when there

has been investigation of the comparability of second-stratum source-trait structure across a number of cultures. The present research is a contribution to this end, through a comparison of second-stratum personality structures in the questionnaire realm between American and Japanese adults.

C. Design and Execution of Experiment

Of the 20 to 25 reasonably confirmed simple-structure factors in the "personality sphere," as seen in questionnaire responses, 16 of those with the largest variance have been embodied in the published 16 PF test (1949, 1962). It seems likely that for some years this test will cover as much of the primary realm as has any chance of being covered systematically by second-order analyses. Accordingly, we have taken it as the starting point of this and other investigations of the nature of the second stratum.

For its Japanese edition, the translation of the 16 PF was carried out a few years ago by Tsujioka, with conditions described elsewhere (16). For the purposes of the present research, the Japanese edition was given to 300 male Japanese undergraduate students (University of Kansai) and, under parallel conditions (as defined in the 16 PF Handbook), the English edition—equivalent item for item—was given to 117 American undergraduate men (University of Illinois).

As is well known, the second-order realm can be approached either (*a*) by the pure-factor vector-correlation method or (*b*) by the factor scale-correlation method. In the latter method, one scores subjects on the primary scales and intercorrelates the resultant scores. In the former method, one rotates to maximum simple structure and determines the correlation matrix among the pure-factor, unit-length vectors R_f. He does this by the formula $R_f = DR_{rr}^{-1}D$, where R_{rr} is the matrix of correlations among reference vectors observed at the point of maximum resolution. Theoretically, the pure-factor method is better for then the vector cosines are not affected by the unreliability of the (as yet) only moderately lengthy scales or by any bias of scale totals, through the accidental intrusion of other factors into any particular scale score. We decided to adopt this latter method, although it makes great demands on thoroughness of rotation to simple structure. In this case, maximum simple structure was pursued to 20 overall rotoplot visual rotations after the initial analytical oblimax solution—a very thorough resolution indeed. The correlation matrices thus obtained have been published elsewhere (16).

Next, the two correlation matrices—scale and vector—were centroid factored, both the Kaiser unit-eigenvalue limit and the Cattell test by the "scree" plot (9) agreeing in indicating six factors similarly in each of the

TABLE 1
UNROTATED SECOND-ORDER FACTOR MATRICES

Primary personality factor	(*a*) Second-Order Factors: American							(*b*) Second-Order Factors: Japanese						
	I	II	III	IV	V	VI	h^2	I	II	III	IV	V	VI	h^2
A	—24	—31	—23	+47	+39	—16	61	—42	+49	+28	—14	+15	+20	58
B	+21	—25	+33	+11	—35	—33	46	+15	—18	—18	+39	+32	+04	34
C	—73	—10	—06	—13	—38	+17	74	—62	—38	+11	—09	—16	—28	65
E	+31	—57	—49	—20	—11	—14	73	—52	+34	+17	+48	—23	+05	70
F	+21	—36	—66	+27	—24	+12	75	—63	+61	+04	+13	+16	—04	81
G	—24	+54	+02	+08	—06	—15	38	+07	—27	—36	—37	+16	+06	37
H	—41	—61	—28	+13	+10	+09	65	—71	+17	+22	+11	+19	+28	71
I	+39	—46	+30	+49	+22	+14	76	+39	—14	+69	—13	—23	+21	76
L	+52	+19	—26	—11	+16	—12	43	+40	+52	—15	—12	—14	+30	58
M	+60	—47	+13	+10	+22	—07	66	+52	—13	+42	+26	—27	+22	65
N	—40	—35	—32	—19	+20	+10	47	—27	+18	—33	—17	—27	+10	33
O	+74	+43	+05	—03	+19	—10	78	+78	+51	+06	+06	—09	—05	89
Q_1	—23	—50	—11	—30	+16	—42	61	—24	—31	—36	+35	—32	+28	59
Q_2	+33	—23	+41	—68	+21	+14	86	+39	—31	—17	+26	+03	+05	35
Q_3	—80	—07	+42	—04	+03	+03	82	—61	—55	+10	—11	+24	+24	81
Q_4	+77	+32	—37	+08	+16	+03	87	+74	+53	—05	+21	—02	—01	88
Σ	3.89	2.47	1.69	1.25	0.80	0.48	10.58	4.15	2.38	1.29	0.95	0.68	0.54	10.00

TABLE 2

SIMPLE-STRUCTURE ROTATED-REFERENCE-VECTOR MATRICES

Primary personality factor	(*a*) Resolved Second-Order Factors: American							(*b*) Resolved Second-Order Factors: Japanese						
	I	II	III	IV	V	VI	Mean	I	II	III	IV	V	VI	Mean
A	+61	−03	+32	−12	+20	−18		+67	−08	+01	−03	−03	−20	
B	−02	−03	+04	+08	+07	+63		−10	+02	−12	+11	+01	+53	
C	−09	−70	−42	+16	−02	+06		−22	−65	−04	+12	−14	−21	
E	−03	+08	−03	+63	+38	−04		+24	−09	+01	+68	+05	−04	
F	+32	−03	−05	+73	−02	+02		+54	−00	−36	+27	−13	−08	
G	+18	+13	−34	−33	−01	−01		−17	−04	−22	−44	+18	−09	
H	+22	−47	+15	+26	+17	−15		+56	−42	+00	+19	+11	−03	
I	+16	−03	+79	+03	−29	+19		+13	−11	+82	−12	−05	−11	
L	+01	+58	−00	+08	+13	−16		+24	+66	+02	−07	+28	−21	
M	−04	+24	+59	+15	+04	+14		−07	+11	+67	+18	+08	+13	
N	+01	−30	−03	+14	+27	−37		−02	+12	−24	+08	+32	−42	
O	−06	+76	+13	−15	−08	−05		+06	+80	+11	−04	−14	+08	
Q_1	−00	−07	−04	+00	+66	+02		−32	−14	−03	+46	+55	−04	
Q_2	−80	+04	+28	−06	+08	−12		−33	+11	+07	+06	+12	+33	
Q_3	−07	−63	−04	−42	+01	+02		+11	−82	+09	−13	+17	+03	
Q_4	+12	+75	+08	+18	−09	−20		+06	+83	+02	+07	−08	+20	
Per cent in hyperplane (±.13)	63	50	56	38	63	50	53	44	56	69	63	56	56	57

two studies. Communalities were iterated (15 times) to converge on values for six factors. By oblimax and the visual rotoplot program, the factors were then rotated to maximal obtained simple structure, which in the ± 13 hyperplane attained 53 per cent and 57 per cent respectively for American and Japanese. Table 1 shows the unrotated centroids; and Table 2, the resultant simple-structure reference-vector matrices. (Transformation matrices may be obtained from the authors.)

D. Comparison of Meaning of American and Japanese Structure

The first comparison as to number of factors, magnitudes, hyperplane character, etc., shows substantial agreement between Japanese and American students. After the independent blind simple-structure rotations in the two studies, the authors found it possible to match the factors, pair by pair, across Parts (a) and (b) of Table 2. In putting the matched factors in the same order—for convenience, in (a) and (b)—they have also, according to the Universal Index (6), been arranged in the traditionally convenient order. That is to say, what is usually the largest second-order factor, U.I. (Q) I, Exvia-*vs.*-Invia, is first; U.I. (Q) II, Anxiety-*vs.*-Adjustment, second; and so on.

The nature of these factors and their agreement and disagreement will now be considered one by one. The results will be set forth in separate tables —one for each of the saliently loaded variables. (A saliently loaded variable is one that correlates .30 or more, and occasionally lower, with a reference vector.) We shall also consider two other American studies—partly because the present study is not based on a very large sample ($N = 117$) and partly to compare *cross*-cultural (American-Japanese) differences with *in*-cultural variation. However, it must be pointed out that some variation within the American samples is due to the fact that the second and third American adult groups —Columns 3 and 4 in Tables 3 *et seq.*—(*a*) are not purely students and (*b*) the results are based on *scale* correlations instead of on *vector* cosines, as in Columns 1 and 2.

Here and elsewhere the verbal labels for the primaries have been adjusted to agree with the loading sign; i.e., one can read them without any reversing. Thus in this factor we have the usual factors defining exvia-*vs.*-invia: namely, affectothymia, surgency, parmia, and group dependence. The appearance of conservatism also, in our Japanese exviants, cannot be considered a real cultural variant for it occurs also in one of the American groups; therefore essential agreement must be concluded with respect to the exvia-*vs.*-invia pattern.

Again, in Table 4, the usual characteristic six primaries are picked out. An

TABLE 3
I. EXTRAVERSION-*vs.*-INTROVERSION (EXVIA-*vs.*-INVIA)

Primaries (Titles adjusted to sign of loading)	Symbol for factor	Primary factors		Scale score	
		Japanese ($N = 300$)	American ($N = 117$)	American ($N = 609$)	American ($N = 1652$)
Affectothymia	A	.67	.61	.46	.46
Surgency	F	.54	.32	.48	.59
Parmia	H	.56	.22	.33	.62
Group Dependence	$Q_2(-)$	—.33	—.30	—.39	—.34
Conservatism	$Q_1(-)$	—.32		—.42	
Autia	M			.51	
Dominance	E				.44

TABLE 4
II. ANXIETY-*vs.*-INTEGRATION

Primaries (Titles adjusted to sign of loading)	Symbol for factor	Primary factors		Scale score	
		Japanese ($N = 300$)	American ($N = 117$)	American ($N = 609$)	American ($N = 1652$)
Ego Weakness	C(—)	—.65	—.70	—.53	—.52
Threctia	H(—)	—.42	—.47	—.46	—.42
Protension	L	.66	.58	.54	.54
Guilt Proneness	O	.80	.76	.62	.70
Low Self-Sentiment	$Q_3(-)$	—.82	—.63	—.66	—.54
Ergic Tension	Q_4	.83	.75	.62	.76

indication of a difference between Japanese and American students exists in that the loading —.82 for strength of self-sentiment (Japanese sample) lies outside the three American values. Without entering into a discussion of the complex issue of the significance of a difference in factor loadings, let us conclude that there is at least the basis for an hypothesis that damage to self-sentiment is more of an occasion for generating anxiety in Japan than it is in America.

Although one can have no doubt—after looking over other factor patterns—that there is continuity of pattern across the four samples, one encounters the peculiarity (see Table 5) that surgency (the F factor) loads only the Japanese pattern and sizothymia (the A (—) Factor) loads only the American. That surgency behaves peculiarly in the Japanese personality pattern (or, alternatively, in the American!) has been noted before (15, 16). In American culture surgency (talkativeness, high spirits, lack of inhibition) seems to be determined principally by exviance and independence factors; in Japanese culture it is determined by high activation and alertness and, according to some studies, by anxiety or insecurity. However, this is only an interesting indication of an hypothesis for study.

TABLE 5
III. CORTERTIA-*vs.*-PATHEMIA*

Primaries (Titles adjusted to sign of loading)	Symbol for factor	Primary factors		Scale score	
		Japanese ($N = 300$)	American ($N = 117$)	American ($N = 609$)	American ($N = 1652$)
Harria	I(—)	—.82	—.79	—.53	—.66
Practical Concern	M(—)	—.67	—.59		
Surgency	F	.36			
Super Ego Strength	G	.22	.34		
Shrewdness	N	.24		.48	.27
Sizothymia	A(—)		—.32	—.56	—.54
Ego Strength	C		.42		.19
Group Dependence	Q_2(—)		—.28		
Self-Sentiment	Q_3			.29	

* It has been usual to report this third factor in the secondaries in the reverse direction—as Pathemia, or sensitive subjectivity. Now that it is evident that we have been dealing (but in reverse) with the same factor as U. I. 22 in the objective tests, Cortertia-*vs.*-Pathemia, it seems best consistently to report *both* in the Cortertia (cortical alertness, activation) direction.

The role of sizothymia (flatness of emotion) in cortertia has always seemed a very natural one. Some psychologists see it more readily from the opposite pole—as the affective life of pathemia (drifting feeling) being naturally sustained by (A +) affectothymia (or cyclothymia in some labels). The possibility must always be considered that we are dealing with a purely statistical effect of restricted range upon a correlation, for the Japanese are more to the sizothyme pole of the A factor. Indeed, as Table 8 implies, these loadings should be generally considered also in the light of absolute levels (16).

The factor for which data are given in Table 6 shows no significant signs in Japan of being different from the American patterns, for Q_3 and N are present with subsalient loadings in the Japanese pattern (Table 2), and the absence of self-sufficiency occurs also in two American samples.

The meaning of the factor for which data are given in Table 7 has hitherto been elusive and it has been assigned such descriptive titles as "suspicious alertness," "self-concern," and the present "insecure assertiveness." The last term enters on an hypothesis that the combination of shrewdness, radicalism, toughness (harria), self-assertion, defensiveness (protension), and concern for the self-image (Q_3) arises from insecurity, expressed in counteraggression and defensiveness. Be this explanation sound or unsound, the fact is evident that what is outstanding in the pattern is common to the Japanese and the American samples (the lesser loadings, but in the right direction, match the larger loadings recorded in Table 7 in the other samples).

TABLE 6
IV. INDEPENDENCE-*vs.*-SUBDUEDNESS

Primaries (Titles adjusted to sign of loading)	Symbol for factor	Primary factors		Scale score	
		Japanese ($N = 300$)	American ($N = 117$)	American ($N = 609$)	American ($N = 1652$)
Dominance	E	.68	.63	.50	.36
Surgency	F	.27	.73	.21	
Low Super Ego	G(—)	—.44	—.33	—.23	—.17
Radicalism	Q_1	.46		.55	.46
Low Self-Sentiment	Q_3(—)		—.42		
Shrewdness	N			.34	
Autia	M				.38
Self-Sufficiency	Q_2				.41

TABLE 7
V. INSECURE ASSERTIVENESS

Primaries (Titles adjusted to sign of loading)	Symbol for factor	Primary factors		Scale score	
		Japanese ($N = 300$)	American ($N = 117$)	American ($N = 609$)	American ($N = 1652$)
Radicalism	Q_1	.55	.66	.40	.22
Shrewdness	N	.32	.27	.30	.49
Protension	L	.28		.20	
Harria	I(—)		—.29		
Dominance	E		.38		
High Self-Sentiment	Q_3				.25

The sixth factor of our study will not be discussed. It is essentially what has been recognized (19) as general intelligence coming out appropriately at the second-order level. However, it is curious that in both the Japanese and American samples it includes some negative loading on Factors A, L, and N—a concurrence that needs future explanation, perhaps in terms of student selection.

E. ABSOLUTE DIFFERENCES IN TRAIT LEVEL

The principle has been stated that before cross-cultural comparisons can be made on levels of any trait, it must be established that a functionally unitary dimension is shared by the two cultures. Even when the existence of a similar pattern is established, as here for at least the four major secondaries, there will still be some slight differences of loading pattern; and in such cases presumably one could take the mean pattern as the basis for the comparisons. The differences in the present case being trifling, we have used the standard weights (10) for estimating the endowments of individuals in second-order oblique factors, according to the matrix formulation:

$$V_{fe} = R^{-1}V_{rs}$$

in which V_{fe} is the factor-estimation weight matrix; V_{rs}, the factor-structure matrix; and R, the matrix of primary-factor intercorrelations.

These weights have been transformed further (10) to enable one to go directly from sten scores on the primaries to sten-score values on the derived secondaries, the formulae being as follows:

Sten scores on Exvia-*vs.*-Invia
$= -1.26 + .17A + .33E + .41F + .48H - .16Q_2$
Sten scores on Anxiety
$= 3.74 - .18C - .17H + .19L + .30 - .20Q_3 + .38Q_4$
Sten scores on Cortertia-*vs.*-Pathemia
$= 7.54 - .42A + .19C + .17E + .23F - .55I - .19M + .20N$
Sten scores on Independence-*vs.*-Subduedness
$= -.44 - .27A + .44E - .16G + .32M + .39Q_1 + .36Q_2.$

By applying these formulae to the primary scores on A and B forms (16), first converted to stens by the regular standardization tables (10), thus yielding the nearest thing possible to equal-interval scales, we obtained the sten scores on secondaries (for Americans and Japanese), as shown in Table 8. The significance of these differences can now be examined, since in the sten system (i.e., two stens equal one sigma) the standard deviations in the American and Japanese samples are essentially the same. The test results for these differences are shown to the right in Table 8.

The differences deliberately have been examined *separately* for Forms A and B because (since any factor scale also contains an accumulation of specifics

TABLE 8
SIGNIFICANCE OF DIFFERENCES OF AMERICAN AND JAPANESE STUDENTS ON SECOND-STRATUM FACTOR LEVELS

Secondary trait	Test form	Means in stens American	Means in stens Japanese	*t* value of difference	*p***
U.I. (Q) I. Exvia-*vs.*-Invia	A	5.98	3.88	10.00	< .001
	B	6.46	4.36	10.00*	< .001
U.I. (Q) II. Anxiety-*vs.*-Adjustment	A	5.41	6.70	6.14	< .001
	B	5.25	6.79	7.33	< .001
U.I. (Q) III. Cortertia-*vs.*-Pathemia	A	8.73	7.00	8.24	< .001
	B	7.27	6.54	3.48	< .001
U.I. (Q) IV. Independence-*vs.*-Subduedness	A	7.61	8.00	1.86	n.s.
	B	8.01	9.07	5.05	< .001

* By a numerical coincidence these figures come exactly to 10.00 (rounded from three decimal places) and exactly equal for A and B forms of the 16 PF!
** *p*s are for two-tailed tests.

over and above the main factor) the possibility exists that the discovered difference is partly or wholly due to difference on specifics. The verdict is clear, and in accord with the hypothesis from previous results (15), that a substantial difference exists between these two racio-cultural groups on anxiety and on exvia-*vs.*-invia, the Americans being less anxious and more extrovert. On the other two factors, the difference is less clear because the agreement of A and B forms is not so high. In the case of Independence-*vs.*-Subduedness, the Japanese group tentatively can be assumed to be somewhat higher; but the experiment obviously needs to be repeated. The higher score of the Americans on Cortertia (activation level) and of the Japanese on Pathemia (feeling, emotional sensitivity) is, however, highly significant on both forms, despite some difference in their emphasis. This difference is in accord with the greater emphasis on passive artistic appreciation in the everyday life values of the Japanese and on the unusually high-stimulation level (activation, excitation) in American culture. It would be interesting to see whether the higher alpha EEG interruption—found by Pawlik and Cattell (23) to be substantially associated with Cortertia—also differentiates American from Japanese subjects.

The difference on anxiety agrees with the hypotheses made earlier (15) that anxiety is associated with lower economic level, higher population density, and political pressure. In culture-pattern terms, Cattell (5) has pointed out that the population level on anxiety would also be expected to be correlated with the national level on the cultural-pressure factor since this is associated with ergic frustration. At least it should be associated with *rapidity of increase* of cultural pressure, a value that one suspects is high in this period in Japan, though no redeterminations of level have been made since 1930 (5).

In view of the fairly high genetic component found for extraversion by Eysenck (18) and for the primary A and H components in extraversion found by Cattell, Blewett, and Beloff (11), a study is indicated—e.g., by comparing Japanese in Japan with assimilated Japanese in America—to determine how much of the difference is racial and how much cultural. The fact that British population samples, of largely similar genetic constitution to the American, are significantly higher on invia (introversion) than the latter (3, 17) suggests the possibility that the present difference could also be largely cultural. Whatever its origin, it is of such a substantial magnitude and significance that theories of cultural dynamics can safely be built upon it.

F. Summary

1. Extraversion, anxiety, and other important concepts in personality receive their *only* precise definition as second-order, uniquely resolved factors in

the questionnaire medium, matchable with first-order factors in objective tests.

2. In recent years, there has accumulated an appreciable body of knowledge regarding the constancy of questionnaire personality factor structure across cultures: e.g., across American, British, French, German, Indian, Italian, and Japanese samples. This constancy being adequate, comparisons have been made of *levels* in the different racio-cultural populations, and many significant differences have been found.

3. The present research carries this knowledge to the second-order analysis level, taking socially equivalent groups of 300 male Japanese and 117 male American students. Careful statistical analyses of the 16-PF test results for Forms A and B, using the scale-correlation method, show that the number of second-order factors in the two forms (namely, six, is identical); and that when blindly rotated to simple structure, the factors have the same meaning as shown by the loading patterns. This is true also when the Japanese results are compared with the second-order structure obtained from factor-vector cosines (a different method) on two other, larger American samples.

4. Beyond the essential agreement on the factor patterns for U.I. (Q) I, Exvia-*vs.*-Invia; U.I. (Q) II, Anxiety; U.I. (Q) III, Cortertia; U.I. (Q) IV, Independence; U.I. (Q) V, Insecurity-Assertion; and U.I. (Q) VI, Intelligence, there are in some cases suggestive differences offering hypotheses for research: notably, the loading of surgency in Cortertia and of higher self-sentiment damage in Anxiety in the Japanese.

5. When second-order factor scores are computed, using the same weights for Americans and Japanese, highly significant differences ($p < .001$) appear in the direction of the Americans being lower on Anxiety, higher on Exvia, and higher on Cortertia. At a less-significant level, the Japanese are higher on Independence. Except for the last, these differences stand up on the A and B forms of the test separately—a necessary condition for a conclusion about the factors *per se*.

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A SOCIAL EFFECT ON THE PERCEPTION OF FACIAL RESEMBLANCE*

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In the spring and summer of 1942 an experiment was performed on a number of groups of Caucasian college students at Stanford University and the University of Chicago. The major aim was to learn whether these students could, by examining face-photographs two and one-half by one and three-quarter inches in size, successfully distinguish persons of Chinese from those of Japanese descent (1). The data showed that the classifications made by the Chicago subjects were essentially chance affairs, while those made by Stanford students might perhaps be regarded as a shade above chance responses.

In retrospect, another portion of the study now seems to be the more interesting. On the hypothesis that there is a tendency to regard ingroup members as most like oneself in facial appearance, it was forecast that the faces classified as Chinese would also be thought to look more Caucasian. That is, although the Japanese might physically be expected to show more Caucasoid characteristics because of a possible trace of fairskinned stock (i.e., the primitive Ainu who are still present in parts of Japan), this would be more than counterbalanced perceptually by the fact that China was at that time an American war friend and Japan a battle enemy. Hence, the faces thought to be of Chinese stock should look "whiter" than those thought to be of Japanese extraction.

The research data of 1942 fitted, in considerable degree, the above hypothesis. In the case of the Japanese photographs, there was a correlation coefficient of .57 between calling a face Chinese (rather than Japanese) and also selecting it as among the most Caucasian in appearance. With the Chinese faces, the correlation between calling them both Chinese and of Caucasian appearance was smaller but still appreciable. It was .37.

In the 20 years since the time of this experiment the political alignments of the world have changed. Japan is now in the American political orbit. The status of China is an ambiguous one with Taiwan officially friendly to America and Mainland China extremely hostile. So, while the alignments are not completely reversed from what they were in 1942, they are sufficiently altered to

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make one suspect that the correlations that obtained earlier would now be rather drastically reduced in size.

Happily, the 56 face-photographs used in the original study had been preserved. These were of former Stanford students of Oriental extraction. During the winter, spring, and summer of 1962 the faces were again shown to Stanford students drawn from courses in general psychology. This group numbered 70 men and 42 women. All were Caucasian. The subjects individually observed the photographs without time limit. As before, the first directions were:

> On the chart before you are 56 pictures of Chinese and Japanese. These students may or may not be equally divided between the two races. Write *C* (for Chinese) or a *J* (for Japanese) after each number.

To counterbalance the possible suggestive effect of a primacy factor, the last line of the directions was modified for half of the subjects so as to read, "Write a *J* (for Japanese) or a *C* (for Chinese) after each number." After each subject had completed his task he was asked to put check marks before the four he felt looked most like Caucasians. The Caucasian score was the number of check marks made by each of the 112 subjects.

That the changed political alignments had affected social perceptions was made apparent from a scrutiny of the data of the present research. This time, the set of Japanese faces yielded a coefficient of only .27 between classifying the faces as Chinese and thinking that they looked Caucasian. The corresponding coefficient for the Chinese faces was .26. That is, while there still appeared, perhaps, a tendency to regard as Caucasian-looking the faces that were classified as Chinese, the relationship—particularly in the case of the faces that were actually Japanese—was now far smaller.

As in 1942, the subjects gave little better than chance responses in their attempts to differentiate the Chinese from the Japanese faces. Only 52.1 per cent of the Japanese were correctly designated and 51.4 per cent of the Chinese. Of the 56 photographs, 29 received at least a bare majority of correct votes and one achieved a tie vote. The correct votes of the 112 subjects ranged from 15 to 42 (out of 56) with a mean of 29.08. With 28 a chance score, significance at the .05 level is obviously not achieved.

Of course, one cannot be certain that the faces shown in the photographs are typical of the Chinese and Japanese faces seen in California. And, too, it is reasonable to assume that persons in the flesh might have offered additional differentiating cues. But, much as these inadequacies could affect the "racial" differentiations, they should not negate the findings on the perception of facial

resemblances. The testings of 1942 and 1962 seem clearly to demonstrate that the perception of facial resemblance is, at least under certain circumstances, affected by the degree of friendliness with which the "racial" group in question is held.

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THE EFFECT OF PREPARATORY ACTION ON BELIEFS CONCERNING NUCLEAR WAR*

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A. INTRODUCTION

A person is impelled by the anticipation of the possible occurrence of a threatening event to prepare himself. This preparation may range from relatively passive acts of resignation to effortful activities designed for self-protection. It is generally thought that the more certain the expectation of the event the more likely the person is to expend effort (and also that some definite action is adaptive for the person in the face of threat).

Yaryan and Festinger (5), in testing a derivation from dissonance theory (3), found that high-school students who were required to expend considerable effort in preparation for the possible occurrence of an examination believed more strongly that they were among that half of a group preselected to take the examination than did those students who had to make little preparation. The importance of the study is that it demonstrated the converse of the generally accepted relation that belief intensifies preparatory efforts: i.e., it demonstrated that preparatory efforts increase belief that an event will occur. The theory of dissonance predicts this relationship on the basis of the idea that the cognition that one has expended effort is dissonant with the cognition that an assumed event will *not* occur. One way a person may reduce this dissonance is to change one of the cognitions by persuading himself that the event is more likely to occur. (Other ways of reducing the dissonance are to persuade oneself (*a*) that no effort was exerted or (*b*) that the effort was justified in terms of some other goal exercise, information, etc.)

A similar position concerning the relation between preparatory efforts and belief in the occurrence of an event is held by critics of our national policy of military defense. They argue, in part, that vigorous defensive efforts make the individual (nation) psychologically more prone to commit an aggressive or provocative act leading to war. It would follow from the theory of dissonance that if the public is induced to expend considerable personal effort in the defense program (as would be required in the building of private shelters)

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one possible consequence might be an increase in the general belief that war is inevitable. Further changes in beliefs concerning nuclear war should occur as a consequence of this increased certainty. These changes would occur in the direction of increasing the person's belief that he will survive the event should it occur.

The basic hypothesis of the experiment reported here is identical with that of the Yaryan and Festinger study: preparatory efforts will lead to an increase in the belief that the event will occur. However, this study differs from that of Yaryan and Festinger in some important ways. The issue of nuclear war is not an isolated event with which the subjects may be confronted for the first time (as with a particular aptitude test). By virtue of exposure to mass media and informal discussions, subjects will have been concerned, more or less, with the personal and social meaning of nuclear war. Some integration into personal systems of beliefs and expectations will have occurred prior to experimental manipulation. The present experiment was designed to test the hypothesis that preparatory efforts will lead to a measurable increase in the belief that an event will occur, and to do this in a context in which there are pre-existing public and private attitudes concerning the meaning of the anticipated event and in which the initial level of certainty of the subjects may be variable and more or less vague. Such is the case with the threat of nuclear war and with most important social events.

The question of the amount of effort necessary for a cognitive change was also subjected to indirect testing. Although Yaryan and Festinger speak of a "great deal of effort" as leading to a change in belief, Rabbie, Brehm, and Cohen (4) report data to support the idea that a "decision" to take a discrepant position in relation to a personal attitude is sufficient to produce dissonance and consequent cognitive change. It follows that it is not necessary to build a bomb shelter to produce a change in belief; the reading of a pamphlet on how to prepare to survive a nuclear attack should be sufficient to produce dissonance.

It was also predicted that if there is an increase in the belief that war will occur there will be concurrent changes in other beliefs so as to reduce the threat. A person faced with the imminence of a dreadful event may come to believe that the event is not so dreadful either in its very nature or because he knows of a way to survive. The indirect effect of preparation for survival may be to enhance the person's belief that nuclear war is merely an extension of traditional warfare or that if he prepares sufficiently he will avoid being destroyed; i.e., his preparatory efforts are worthwhile. (The cognitions that one has expended effort and that the effort is of no value will lead to dissonance, and the person will be motivated to believe that his efforts are of some use—

if not for protection in the event of a war, then in producing a photographic dark room, etc. As a way of eliminating the dissonance, the person may also persuade himself that he did not really exert himself.) In the extreme, the person may also decide that if war is inevitable it would be better to strike first to gain an advantage.

The design of this study called for a comparison of the beliefs concerning nuclear war on the part of two groups of subjects. Members of one group had been induced to read a pamphlet on how to prepare for nuclear war; members of the other group had no specific preparation prior to expressing their beliefs.

B. Method

1. *Subjects*

Three classes of 11th-grade students from two high schools were made available for the experiment. Two of the classes were different sections of the same English class. There were nine male and 18 female students in the control group and 11 male and 18 female students in the experimental group. Testing took place in the classrooms.

2. *Procedure*

The experimenter entered the classroom during a regular instruction period. He was introduced as someone from the University who was conducting a survey. A brief statement was given to the effect that a study of the personal and social opinions of high-school students was being conducted and cooperation was requested. The students were told not to sign the questionnaires but to put their initials at the top of each sheet so that the several questionnaires that each *S* was to complete could be matched.

Without further introduction, one-half the class was given a world-affairs questionnaire containing items concerning nuclear war. The other half was given a set of items from Marlowe's Social Desirability Scale (1). The latter items were chosen because they are easy to answer and are relatively innocuous. The division of the classes into "experimental" and "control" halves was done by inspection, so that each half would include approximately the same number of male and females. The decision about which half (top or bottom, left or right) was to be experimental or control was decided in advance of entering the classroom. Students in the two halves were not aware that two questionnaires were being administered.

Most students finished the initial questionnaire within five minutes. When all had finished they were shown the pamphlet "Ten for Survival" (2) and

instructed to read it carefully for the next eight minutes. Nothing further was mentioned concerning the purpose of the pamphlet, nor the reason for reading it. At the end of eight minutes, the pamphlets were collected and each group of students completed the questionnaire that the other half had completed initially. This procedure yielded 27 control subjects who completed the war questionnaire prior to reading the pamphlet and 29 experimental subjects who read the pamphlet and then stated their beliefs concerning nuclear war. Discussions following the experiment revealed that the students were not aware that the order of completing the questionnaires differed during the testing.

The content of the pamphlet was an important aspect of the design. "Ten for Survival" was chosen because it had been used extensively and gave explicit information about what to do to survive an attack, but most important it did not mention or discuss the probability of a war. Any difference in belief concerning the possibility of a nuclear war could not be attributed to the students' having been influenced by a statement of authoritative opinion, but must have resulted from some less direct cognitive changes on the part of the readers.

C. Results

The first item in the world-affairs questionnaire enabled the students to express an opinion concerning their belief in the certainty of a nuclear war. To the stem "A nuclear war with the communists is . . . ," any of the following responses could be appended: certain, probably the case, slightly likely, slightly unlikely, probably not the case, or definitely not the case.

The simplest way of comparing the reactions of the two groups of students is by counting the number in each group who felt war a possibility. In the preparatory-effort condition, 27 out of 29 (or 93 per cent) checked one of the first three choices. In the control group, 16 out of 27 (or 59 per cent) checked these responses. Another way of describing the effect of reading the pamphlet is to assign a score of 1 through 6 to the alternatives, beginning with the left-hand side of the scale. This approach yields a mean rating of 2.68 for the "prepared" subjects and a mean rating of 3.30 for the control subjects. The difference between these means is significant at the .01 level ($F = 5.36$; $df = 1, 54$). These data support the hypothesis that the effect of preparing for an event, in this case nuclear war, can lead to an increase in the belief that the event will occur. Although the preparatory act consisted of only eight minutes of reading and thinking about a pamphlet, it was sufficient to produce measurable differences in the person's belief system concerning a major social event.

Also predicted was the change of beliefs beyond that involved in an inten-

sified belief in the certainty of war. Students were given an opportunity to reduce the dissonance and personal threat that may have been aroused, by responding to a statement commonly used to minimize the threat of nuclear war. To the stem "There is nothing special about nuclear bombs; they are mainly a more effective kind of weapon," students could answer: agree very much, agree somewhat, agree a little, disagree a little, disagree somewhat, or disagree very much. Scores of 1 (agree very much) through 6 (disagree very much) were assigned to the alternatives. Using this scoring system the "prepared" subjects had a mean of 4.28 and the control subjects, a mean of 5.23. The difference is significant at the .02 level ($F = 4.22$; $df = 1, 54$).

It is worth noting that the majority of all the students disagreed with the statement. Only nine out of 28 (or 32 per cent) of the students in the preparatory-effort condition and three of the 27 (or 11 per cent) of the control students chose one of the three "agree" alternatives.

Of course, one of the most direct and widespread techniques for dealing with the threat of nuclear war is to persuade oneself that the correct kind of preparation will lead to survival. Unfortunately, the nature of the pamphlet prevents a direct test of the extent to which this particular cognitive change occurred as an indirect consequence of preparation. As one might expect, in the pamphlet there were explicit statements to the effect that preparation would help a person survive. Any measured difference between those who read the pamphlet and those who did not cannot be attributed solely to the person's efforts to deal with threatening or dissonance-arousing ideas. The presentation of the pamphlet's authoritative viewpoint was sufficient to effect some opinion change; thus it is no surprise that the two student groups differed significantly in their responses to the most direct statement on the value of preparedness.

On the statement "If we prepare now with shelters, etc. we may save a majority of those lives that would have been lost in a nuclear war" the mean rating of control subjects was 2.70 and that of the "prepared" subjects was 1.75. The difference between these means is significant at the .01 level. The most striking contrast between the two groups is in the number of students that chose the most confident response. "Agree very much" was chosen by five control subjects (18 per cent) and 18 (64 per cent) of those in the "prepared" condition.

This degree of confidence in ability to make an effective response to anticipated danger may express itself in the support of adventurous or aggressive acts or in the support needed to await the outcome of prolonged negotiations designed to reduce the possibility of a desperate attack. The item designed to provide data on this issue ("It would be to the advantage of the Free World

if the U. S. launched a preventive nuclear attack on Russian rocket bases") revealed no differences between control and experimental subjects. As was expected, there were no differences between the two groups of students on information items concerning East-West relations.

D. Discussion

Although the theory of dissonance does not provide one with a technique for predicting which of several alternative modes of reducing dissonance will occur, it does make possible (apparently) relatively surprising predictions concerning changes in beliefs on important personal and social matters. In this study, the subjects who had read the pamphlet could have reduced dissonance by each of a number of techniques. For example, they could have decided that the pamphlet was interesting in its own right, they could have persuaded themselves that they were expending effort for the benefit of the experimenter, or they could have leafed through the pamphlet without exerting any appreciable effort. If the subjects had used these techniques to any extent no difference between the groups would have been found. The surprising prediction is that the students would change their belief (that war would occur) to a sufficient degree that differences between the "prepared" and "nonprepared" groups would be revealed in their reactions to a questionnaire.

The amount of effort expended by the student, in comparison with the seriousness and complexity of the social issues involved, provides relatively dramatic confirmation of the initial hypothesis. Given the change in expectation of nuclear war, the other differences in beliefs (the meaning of nuclear bombs and the possibility of survival) are understandable as further attempts to adjust one's beliefs to the impending threat. Unfortunately the design of this study does not rule out all other tenable explanations. It is possible that the greater certainty of a nuclear war exhibited by those who read the pamphlets may have been the result of a second indirect response to the reading of the pamphlets. Their reasoning may have gone something like this. "If the Office of Civil Defense has bothered to print and distribute this information, then these experts must believe that war is a likely occurrence." Having reasoned (if they did) in such fashion, students may have adjusted their own level of certainty to match that implicitly ascribed to the "experts" who prepared and distributed the pamphlets. Of course, this alternative explanation can also be included in a "dissonance" framework. The dissonant elements being "experts preparing and distributing civil defense pamphlets" and "there is, actually, little likelihood of a war." One way of resolving this dissonance is to persuade oneself that war is a likely event.

E. Summary

In the experiment reported here the beliefs about nuclear war of students who had been required to read a civil-defense pamphlet were compared with those of students who had no specific preparation. The students who read the pamphlet were more certain that there would be a nuclear war with the communists and that the majority could survive such a war. These results provide support for the hypothesis derived from the theory of cognitive dissonance (3); namely, that preparatory efforts increase the person's belief that an anticipated event will occur.

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THE MEASUREMENT OF INDIVIDUAL DIFFERENCES IN PERCEIVED PERSONALITY-TRAIT RELATIONSHIPS AND THEIR RELATION TO CERTAIN DETERMINANTS*[1]

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A. INTRODUCTION

In recent years the emphasis in psychological investigations of interpersonal perception has shifted from the accuracy of such perceptions to the nature of the processes involved. The current interest seems to be directed toward the processes by which impressions of the personalities of others are formed (5). Theoretical considerations have led a number of investigators to posit an "implicit personality theory" or "lay theory of psychodynamics" for individuals through which impressions are formed (5, 6, 11, 12, 22, 23, 24). If this concept is valid, when Individual A receives partial information about Individual B, A is able to form a more complete impression of B's personality according to A's "theory" as to what traits are related to those that are perceived in B.

A number of investigators have addressed the problem of the interrelationships that exist among traits. The usual procedure has been to present the subject with a number of traits that characterize an actual or hypothetical person and to ask the subject to infer what other traits the individual possesses. These studies may be characterized as investigations of trait implication or trait inference and have been conducted by Asch (2), Benedetti and Hill (4), Gollin (18, 19), Gollin and Rosenberg (20), Haire and Grunes (21), Hays (23), Jones (26), Kelley (27), Levy (28, 29, 30), Luchins (31, 32, 33, 34), Mensh and Wishner (35), Pepitone and Hayden (39), Shapiro and Tagiuri (41, 42), Tagiuri (43), and Wishner (46).

The criticism has been made that research to date has done little to help in the understanding of interpersonal behavior in general, and that this state of affairs may have resulted from a failure to specify as goals the determination of

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(*a*) the qualities of verbal categories that people utilize in their impression of others, (*b*) the determinants or correlates of these qualities, and (*c*) the consequences of different qualities for other types of behavior (22). The criticism may also be made that there has been a failure on the part of investigators in this area to deal with the role of individual differences [see Tucker and Messick (45)]. Generally, results are obtained for the average person.

The present research was principally directed (*a*) to the measurement of individual differences in perceived trait relationships, (*b*) to an investigation of the correlates or determinants of the different types of individuals, and (*c*) to an examination of the structure of trait relationships for different types of individuals discovered.

B. Procedure and Results

1. *The Measuring Instruments*

Two classes of measuring instruments were required: (*a*) instruments for measuring individual differences in perceived trait similarity and (*b*) instruments for measuring possible determinants or correlates. For the first class, parallel forms (A and B) of a trait-similarity rating scale were constructed.

TABLE 1
Trait Numbers of the Trait Names Appearing in the Trait-Similarities Rating Scale

Trait number	Trait name	Trait number	Trait name
01	Humorous	26	Unemotional
02	Tense	27	Predictable
03	Active	28	Relaxed
04	Dishonest	29	Youthful
05	Unsociable	30	Changeable
06	Selfish	31	Awkward
07	Graceful	32	Brave
08	Weak	33	Aggressive
09	Naive	34	Cooperative
10	Unintelligent	35	Sociable
11	Passive	36	Irrational
12	Unusual	37	Competitive
13	Mature	38	Optimistic
14	Interesting	39	Honest
15	Submissive	40	Aimless
16	Rational	41	Sensitive
17	Emotional	42	Stable
18	Cowardly	43	Unpredictable
19	Proud	44	Intelligent
20	Strong	45	Pessimistic
21	Insensitive	46	Sophisticated
22	Unselfish	47	Domineering
23	Humble	48	Defensive
24	Motivated	49	Serious
25	Typical	50	Uninteresting

Each form consisted of 300 pairs of personality-trait names to be rated on an eight-point scale of perceived similarity–dissimilarity. The 300 items constituting the two forms were nonoverlapping random samples from the 1225 possible pairs arising from the inclusion of 50 trait names. The fifty trait names are listed in Table 1. Measuring instruments constituting the second class were selected so as to assess as broadly as possible the sociological, personality, and ability attributes of the individuals. The measuring instruments constituting the second class and the scores obtained from each are given in Table 2. A brief discussion of each of the measuring instruments is given below.

TABLE 2
VARIABLES INCLUDED IN THE TRUNCATED CORRELATIONAL ANALYSIS

Variable number	Description of variable
	Biographical Data Sheet
1	Age
2	Sex (1 = male, 2 = female)
3	Year in college (1 = Fr, 2 = Soph, 3 = Jr, 4 = Sr)
4	Size of home community (1 small . . . 6 large)
5	Father's age
6	Father's occupation, by first rater (7 low . . . 1 high)
7	Father's education (1 low . . . 17 high)
8	Mother's age
9	Mother's education (1 low . . . 17 high)
10	Number of brothers
11	Number of older brothers
12	Number of younger brothers
13	Number of sisters
14	Number of older sisters
15	Number of younger sisters
16	Total number of brothers and sisters
17	Warm-cold rating of father (1 warm . . . 5 cold)
18	Warm-cold rating of mother (1 warm . . . 5 cold)
19	Lenient-strict rating of father (1 lenient . . . 5 strict)
20	Lenient-strict rating of mother (1 lenient . . . 5 strict)
21	Father's age minus mother's age
22	Father's education minus mother's education
	Kuder Preference Record
23	Outdoor
24	Mechanical
25	Computational
26	Scientific
27	Persuasive
28	Artistic
29	Literary
30	Musical
31	Social Service
32	Clerical
	School and College Aptitude Test
33	Linguistic
34	Quantitative
35	Total

TABLE 2 (*continued*)

Variable number	Description of variable
	Category-Width Scale
36	Total score
	Social Desirability Scale
37	Total score
	Interpersonal Rating Scale
38	Evaluative rating of "the average person"
39	Evaluative rating of "people as a whole"
40	Father's occupation, by second rater (7 low . . . 1 high)
	Public Opinion Questionnaire
41	California F scale
42	Number of agreement ratings on "positive California F scale"
43	Number of agreement ratings on "negative California F scale"
44	Triandis' acquiescence-response-set measure
45	Tolerance-intolerance of ambiguity scale
46	Authoritarian content score (C)
47	Acquiescence-response-set score (S1)
48	Acquiescence-response-set score (S2)
	Personality Inventory
49	Cycloid disposition scale (C)
50	Rhathymia scale (R)
51	Thinking-introversion scale (T)
52	Cooperativeness scale (Co)
53	Extroversion scale (E)
54	Neuroticism scale (N)
	First Point of View
55	Total score
	Second Point of View
56	Total score
	Third Point of View
57	Total score

a. Biographical data sheet. This questionnaire assessed a number of sociological and background variables pertaining to the individuals: age, sex, year in college, size of home community, age of father and age of mother, occupation of father, number of brothers, number of older brothers, number of younger brothers, number of sisters, number of older sisters, number of younger sisters, total number of brothers and sisters, and warm-cold and lenient-strict ratings of father and of mother as they were perceived when the subjects were in high school. The following were coded high: female, large community, lower socioeconomic occupation, and cold and strict ratings of parents.

b. Personality inventories. On the basis of recent findings (3) it was considered necessary to administer only four of the Guilford scales: cycloid disposition (emotional instability), rhathymia (happy-go-lucky), thinking intro-

version (introspectiveness), and cooperativeness. Because the first three of the preceding scales contained overlapping items, decision was reached to score overlapping items for only one scale. This procedure would make the scales experimentally independent. The scales used were approximately 73 per cent as long as the original scales and were considered to be of sufficient length to retain factorial integrity. Decision was also reached to score the personality inventory for extroversion and neuroticism since it contained most of the items for those two scales as measured by Maudsley's personality inventory.

c. The California F Scale. All but two outdated items of the final 30 items appearing in Forms 45 and 40 of the California F Scale were included (1). The scale was scored in the usual fashion: i.e., authoritarianism was indicated by a high positive score.

d. Negative California F Scale. Sixteen of the items in the California F Scale were reversed in meaning, so that agreement indicated nonauthoritarian attitudes. This procedure has been utilized by a number of investigators to separate acquiescence-response-set from authoritarianism, as measured by the F Scale (9, 36, 37, 44). Three acquiescence-response-set scores were obtained from the Negative California F Scale items and the corresponding 16 positive items in the California F Scale. As suggested by Triandis and Triandis (44), the acquiescence-response-set score was equal to the number of positive items with which a subject agreed *plus* the number of negative items with which a subject agreed *minus* 16. The other two acquiescence-response-set scores and the single authoritarianism-content score were based on formulas developed from Helmstadter's "postulated-knowledge" model (25, 36, 37). The model implies that a subject responds in terms of belief whenever possible and that if he has no real belief he responds in terms of acquiescence-response set. The set and content scores are statistically independent.

e. Tolerance–intolerance of ambiguity scale. A recently developed measure of intolerance of ambiguity was used (7, 8). It was a 16-item Likert-type scale. Alpha-coefficient estimates of reliability ranging from .39 to .62 and a test-retest reliability estimate of .85 have been reported. The scale was keyed so that a high score indicated intolerance of ambiguity.

f. Category-width scale. The category-width scale is a scale that measures the width of categories that individuals characteristically employ in their categorizations of objects (40). In the scale, subjects are given an average quantity pertaining to a class of objects or events and are asked to select from two sets of four alternatives the largest and smallest objects that are included in the category. An odd-even reliability estimate of .90 has been reported. The scale was scored so that a large score represents a broad category width.

g. Social-desirability scale. Edwards' 39-item social-desirability scale (14) was administered. The scale was keyed so that a high score was indicative of high social-desirability response set.

h. Interpersonal rating scale. Because a number of studies dealing with the measurement of meaning have pointed toward the importance of individual differences in "evaluation," a measure of the extent to which individuals evaluated other people positively was constructed. The Interpersonal Rating Scale was in semantic-differential form. Two personality concepts ("The Average Person" and "People as a Whole") were rated on an eight-point scale for each of 25 bipolar personality traits that were highly evaluative in nature. The correlation between these two scales (.78) was considered to be a lower bound to reliability. The scales were scored so that a high score denoted high positive evaluation of others.

i. Kuder Preference Record-Vocational and the School and College Ability Test (SCAT). Scores on the Kuder Preference Record-Vocational and the SCAT were obtained from the Testing Bureau at the University of Illinois.

2. *Subjects*

All of the measuring instruments (except for the Kuder Preference Record-Vocational and the SCAT) were administered and data collected from 262 subjects enrolled in introductory psychology at the University of Illinois.

C. Analysis and Results

A type of factor analysis over individuals recently formulated by Tucker and Messick (45) and based on a procedure developed by Eckart and Young (13) for approximating a matrix by another matrix of lower rank was used in the analysis of individual differences in the trait-similarity ratings. The analysis yields different points of view about stimulus similarity and, in the present case, was utilized to determine different types of individuals or different points of view concerning perceived personality-trait similarity. The analysis was applied to the sums of squares and sums of cross-products matrices over individuals of the similarity-dissimilarity ratings. Because two forms of the trait-similarity rating scale were included for purposes of reliability estimation (and because the capacity of the computers was limited to records for 50 individuals), the analysis was conducted four times: once for each of four submatrices constructed from the ratings of two samples of 50 individuals on the two forms of the trait-similarity rating scale. For each analysis, there were generated 300 item coefficients or measures of dissimilarity for pairs of trait names and 262 individual coefficients on dimensions used to represent different

points of view. An inspection and analysis of the dimensions obtained indicated that three dimensions for each submatrix were significant. Because there was some question concerning the congruence of the three dimensions obtained from each submatrix, six dimensions were retained for further analysis.

At this point, individual coefficients had been obtained on six dimensions for each submatrix. These coefficients were not unique solutions, however, since (in the analysis) the obtained dimensions are unique only within an orthogonal transformation. Therefore, since each of the dimensions for each analysis may be transformed, question arose as to how this transformation could be defined most advantageously. An analysis developed by Dr. Ledyard R. Tucker[2] was utilized, based on the procedure for obtaining coefficient alpha (10). This procedure (*a*) transformed the dimensions in each analysis, (*b*) developed composite dimensions based on the sums of the transformed dimensions, and (*c*) produced coefficients alpha for each of the resultant composite dimensions. The composite dimensions were obtained in such a way that their reliability estimates were at a maximum. Three reliable orthogonal composite dimensions were obtained which confirmed the congruency of the three factors for each of the submatrices. Their reliabilities were .97, .94, and .87. As part of the analysis, both individual and item coefficients were obtained on each of the three composite dimensions. Using criteria similar to simple structure, the dimensions were rotated to positions having psychological meaning.

The meaning of the three rotated composite dimensions was obtained from consideration of three types of information: (*a*) the distributions of individual coefficients on the three composite dimensions, (*b*) the intercorrelations of the individual coefficients with the scores for individuals on the "outside" variables —i.e., with the personality, sociological, and ability determinants, and (*c*) the measures of dissimilarity provided by the item coefficients for pairs of trait names.

The distributions of individual coefficients are given in Figures 1, 2, and 3. Figures 1 and 3 indicate that all individuals received fairly large positive scores on the second composite dimension or point of view. Figure 2 shows that there are both positive and negative coefficients on the first and third points of view and that they are relatively smaller in size than the coefficients on the second point of view. However, most of the coefficients on Composite Dimension 1 are positive, and there are more positive than negative coefficients on Composite Dimension 3. On the basis of these distributions, the second point of view was interpreted as a type of "idealized individual" with respect to the perception of

[2] Personal communication and contained in Pedersen (38).

personality-trait similarity; and the first and third points of view were interpreted as alteration or shift points of view from the second point of view.

Additional understanding of the three points of view was obtained from the intercorrelations of the individual coefficients with the second class of variables included in the study. In this connection, two samples of individuals must be considered: namely, the total sample of individuals ($N = 262$) and a truncated sample of individuals ($N = 181$). Since (in the total sample) data were

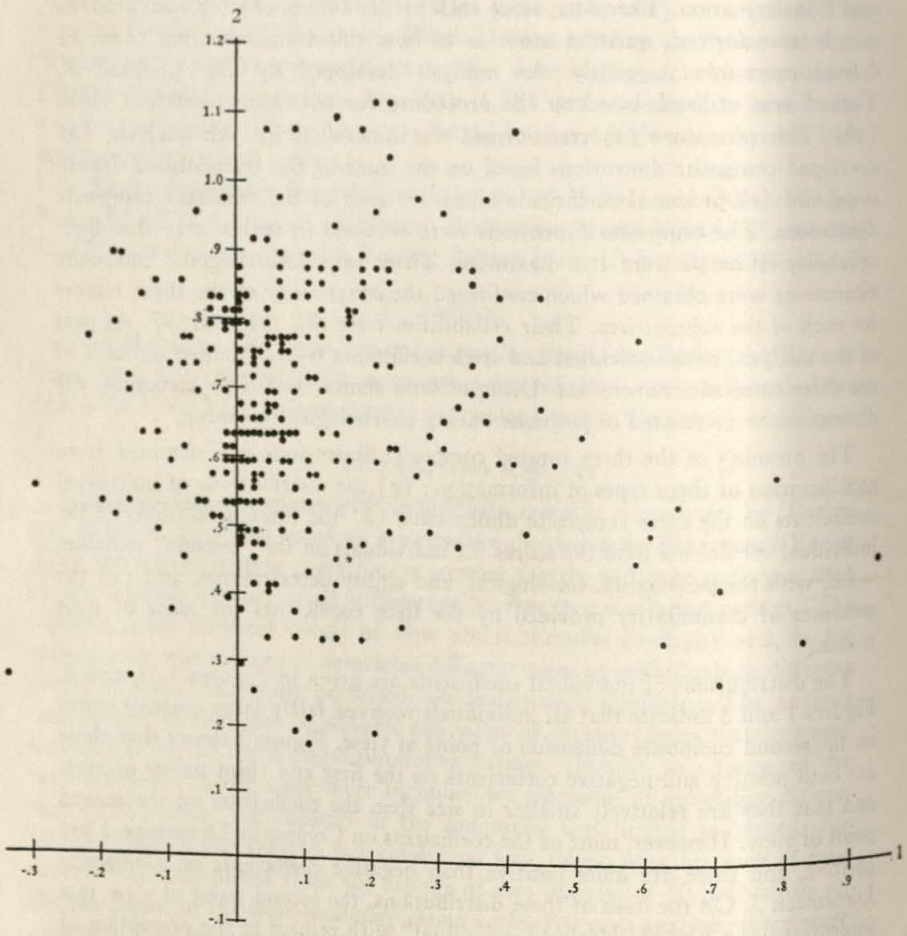

FIGURE 1
PLOT OF INDIVIDUALS IN THE PLANE FORMED BY COMPOSITE FACTOR 1 AND COMPOSITE FACTOR 2 AFTER ORTHOGONAL ROTATION BY THE GRAPHICAL METHOD

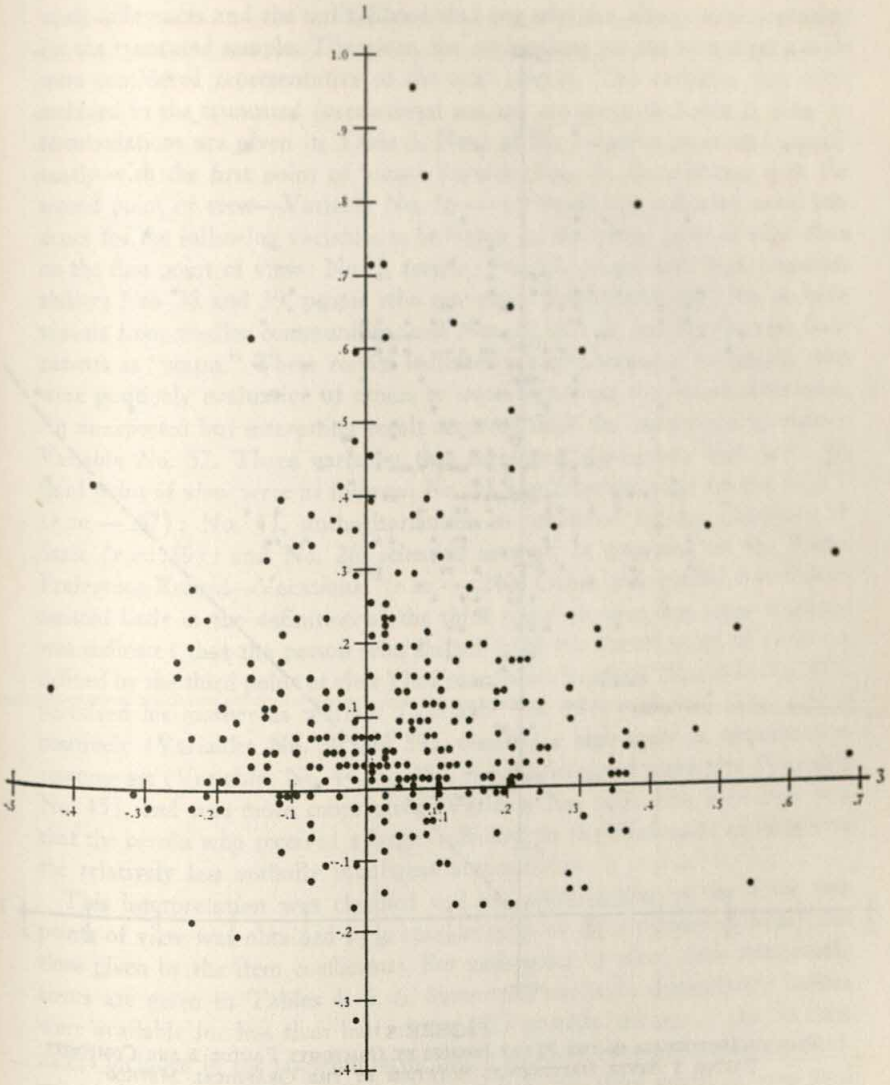

FIGURE 2
PLOT OF INDIVIDUALS IN THE PLANE FORMED BY COMPOSITE FACTOR 1 AND COMPOSITE FACTOR 3 AFTER ORTHOGONAL ROTATION BY THE GRAPHICAL METHOD

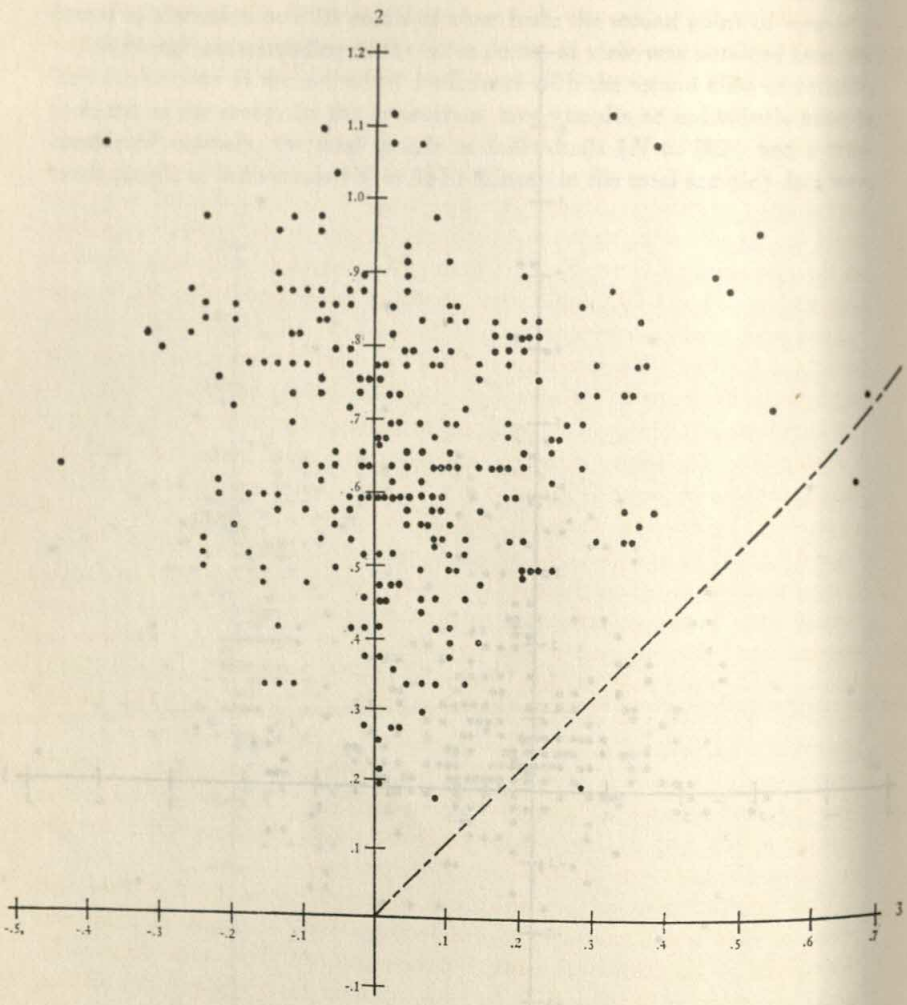

FIGURE 3
PLOT OF INDIVIDUALS IN THE PLANE FORMED BY COMPOSITE FACTOR 2 AND COMPOSITE FACTOR 3 AFTER ORTHOGONAL ROTATION BY THE GRAPHICAL METHOD

missing on some of the variables, it was necessary to truncate the sample of individuals to permit correlations to be obtained for all of the second class of variables with the three points of view. An inspection of the corresponding means, standard deviations, and correlations for the two samples showed very

small differences and the unlikelihood that any selection effects were operating for the truncated sample. Therefore, the correlations for the truncated sample were considered representative of the total sample. The variables that were included in the truncated correlational analysis are given in Table 2. The intercorrelations are given in Table 3. None of the variables correlated significantly with the first point of view—Variable No. 55. Correlations with the second point of view—Variable No. 56—were small but indicated some tendency for the following variables to be higher on the second point of view than on the first point of view: No. 2, female; No. 33, people with high linguistic ability; Nos. 38 and 39, people who rate other people positively; No. 4, individuals from smaller communities; and Nos. 17 and 18, people who rate their parents as "warm." These results indicated a slight tendency for people who were positively evaluative of others to score higher on the second dimension. An unexpected but interesting result occurred with the third point of view—Variable No. 57. Three variables that correlated moderately high with the third point of view were as follows: No. 33, the linguistic score on the SCAT ($r = -.57$); No. 41, authoritarianism, as measured by the California F Scale ($r = .39$); and No. 26, scientific interest, as measured on the Kuder Preference Record—Vocational ($r = -.24$). Other and smaller correlations assisted little in the definition of the third point of view, but some tendency was indicated that the person who shifted from the second point of view (as defined by the third point of view) had more older brothers (Variable No. 11), perceived his mother as warmer (Variable No. 18), evaluated other people positively (Variables No. 38 and 39), received a high score on acquiescence-response set (Variables No. 44, 47, 48), was intolerant of ambiguity (Variable No. 45), and was more cooperative (Variable No. 52). The indication was that the person who received a large coefficient on the third point of view was the relatively less verbally intelligent authoritarian.

This interpretation was clarified and an interpretation of the other two points of view was obtained by a consideration of the structure of item relations given by the item coefficients. For each point of view, these item coefficients are given in Tables 4, 5, 6. Since trait similarity-dissimilarity indices were available for less than half of the 1225 possible pairings of the 50 trait names included in the trait-similarity rating scales, a conventional factor analysis of the item coefficients obtained for each of the three points of view was impossible. However, a type of subjective factor analysis was conceived which would determine factors for the points of view. Because the first and third points of view represented alterations from the second point of view, it was not meaningful to examine the structure of trait-name similarity for them be-

TABLE 3

Matrix of Intercorrelations Between the Variables Included in the Correlational Analysis for the Truncated Sample of Individuals* (Decimals Omitted)

| Variable number | Variable number | | |

TABLE 4

MATRIX CONTAINING THE 600 ITEM COEFFICIENTS ON ROTATED COMPOSITE FACTOR ONE*

| Variable | | Variable number | | |

TABLE 5

Matrix Containing the 600 Item Coefficients on Rotated Composite Factor Two*

| Variable | Variable number | | |

TABLE 6

MATRIX CONTAINING THE 600 ITEM COEFFICIENTS ON ROTATED COMPOSITE FACTOR THREE*

| Variable | | Variable number | | |

TABLE 7

SUBJECTIVE FACTOR MATRIX SHOWING THE STRUCTURE OF RELATIONS BETWEEN TRAIT NAMES FOR IDEALIZED INDIVIDUAL NUMBER TWO

Trait number	Trait name	Factor I	II	III	IV	V	VI	VII
1	Humorous	+	++			++		
2	Tense			++				+
3	Active	+++				++		
4	Dishonest				−−	−−		+
5	Unsociable	−−	−−			−−−	−	
6	Selfish							+++
7	Graceful		++			++	−−−	
8	Weak	−−−	−−			−	−	
9	Naive						−−	−
10	Unintelligent	−−	−−−			−	−−	
11	Passive	−−		−−				−
12	Unusual				−−−			
13	Mature	++	++			+		
14	Interesting	++	++		++			
15	Submissive	−−−	−−				−	−
16	Rational	++	+++		++	+	++	
17	Emotional			+++	−−			+
18	Cowardly	−−	−			−−	−	
19	Proud	++	++			+	+	
20	Strong	+++	+		+	+		
21	Insensitive			−−−				
22	Unselfish		++			++		−−
23	Humble							−−−
24	Motivated	++	++		+	+	+	
25	Typical				+++	+	+	
26	Unemotional			−−−				
27	Predictable			−−	+++			
28	Relaxed			−−	++	++		
29	Youthful	++		+			−−	
30	Changeable			++	−−			
31	Awkward	−	−−		−	−−	−−−	
32	Brave	++	++		+	++	+	
33	Aggressive	+++						++
34	Cooperative		+			+++		−
35	Sociable	++	++		++	+++	+	
36	Irrational		−−−		−		−−	+
37	Competitive	+++						+
38	Optimistic	++	+			++		
39	Honest	++	++			++		
40	Aimless	−−	−−			−	−	
41	Sensitive			+++				
42	Stable		++		++	++	+	−
43	Unpredictable			++	−−−			
44	Intelligent	++	+++		+	+	++	
45	Pessimistic	−	−			−−	−	
46	Sophisticated		++			+	+++	
47	Domineering	+++					+	++
48	Defensive			++				
49	Serious				+		+	
50	Uninteresting	−						

fore they were added on to the second point of view. A factoring of the second point of view yielded seven factors, and the traits that defined each of the factors seemed to be related in a rather conventional way. The subjective factor matrix is given in Table 7. The factor loadings on the first two factors indicated that they were oblique. Many of the trait names loaded on both factors. The first two factors were also the most important, judging from the number and size of their loadings. Considered together, the first two factors seemed to represent "evaluative" dimensions. The first factor suggested the cultural ideal for "male." It was a sort of social-desirability factor in that the traits that were considered important in males by the culture loaded highly on it: i.e., it is important first to be active (Trait No. 3), strong (Trait No. 20), aggressive (No. 33), competitive (No. 37), and domineering (No. 47); then, almost incidentally, intelligent (No. 44), rational (No. 16), mature (No. 13), etc. Trait names falling on the other end of the factor were as follows: weak (No. 8) and submissive (No. 15). Traits identifying the second factor were rational (No. 16) and intelligent (No. 44) *vs.* irrational (No. 36) and unintelligent (No. 10). The foregoing traits and the other traits that load on the second factor suggest that they are related according to a perceived "mental potency." The third factor involved relation as a result of "emotionality." High-loading trait names on the third factor were emotional (No. 17) and sensitive (No. 41) *vs.* unemotional (No. 26) and insensitive (No. 21). The fourth factor suggested relation due to "stability." The identifying trait names for this factor were predictable (No. 27) and typical (No. 25) *vs.* unpredictable (No. 43) and unusual (No. 12). Trait names on the fifth factor related to "sociability." Trait names with large loadings were sociable (No. 35) and cooperative (No. 34), *vs.* unsociable (No. 5). Glaringly absent was competitive (No. 37). The evidence was that it was not in this case the opposite to cooperative. Factor VI had very few moderately large and very large loadings, but sophisticated (No. 46) and graceful (No. 7), *vs.* awkward (No. 31) suggested that this factor related to "sophistication." And the last factor, Factor VII, was identified by selfish (No. 6) *vs.* humble (No. 23). These traits and the others with smaller loadings suggested a kind of "greedy" factor. Thus, seven factors seemed to account for the item coefficients for the second idealized individual. The reader should gain a more thorough clarification of the factors by examining the reported factor matrix and noting the trait names that are highly interrelated on each factor. Although subjective procedures were used to obtain the factor matrix, painstaking effort probably resulted in an accurate representation of the data. A certain indefiniteness of results was necessitated because of the missing information. And possibly slightly different

results would have been obtained had different trait names been used at various points to begin forming clusters of relationship. At any rate, the obtained structure sensibly ordered the structure of trait relations for the "conventional" point of view.

The item coefficients of the first point of view (as compared to those of the second point of view) suggested that the first point of view represented a response set to mark toward the negative end of the rating scale. Because all of the coefficients of alteration for the first point of view were negative, their effects were general; so they were dropped from further consideration.

The item coefficients for the third point of view are of particular interest considering that they represent alterations or shifts from the conventional point of view by authoritarians. There were both positive and negative coefficients of shift, but most of them were rather small. An analysis of them showed that the coefficients of shift of 2.0 or larger principally involved the following traits: dishonest (Trait No. 4), weak (No. 8), passive (No. 11), submissive (No. 15), rational (No. 16), predictable (No. 27), aggressive (No. 33), irrational (No. 36), unpredictable (No. 43), domineering (No. 47), defensive (No. 48), and uninteresting (No. 50). See Table 8. That is, the authoritarian's shift away from the conventional point of view was restricted to a rather small nucleus of traits and these traits definitely shifted in the way that they were perceived as related to other traits.

The change in perceived relationships between the similarity between traits for the authoritarian was examined by adding the large coefficients of shift to the corresponding item coefficient for the second point of view and comparing the resultant structure of trait similarity for persons high on the third point of view to that for the corresponding items for persons high on the second point of view. It was found that domineering became more similar to positively evaluative traits, such as honest, stable, and rational; and became more dissimilar to negatively evaluative traits, like tense, selfish, and insensitive. Rational shed some of its intellectual connotations (motivated, stable, intellectual) and was perceived as more similar to unpredictable, domineering, active, interesting, and brave. Predictable was perceived as more similar to active, emotional, unselfish, intelligent, not submissive, less rational, brave, and interesting rather than similar to passive, unemotional, submissive, rational, and mature. Aggressive shifted from being perceived as similar to selfish, tense, and unsociable to having a greater similarity to unselfish, honest, mature, and sociable. Although unrelated before the shift, defensive became similar to strong, mature, interesting, honest, and graceful. Passive shifted from a dissimilarity to tense, unpredictable, dishonest, and interesting to being dissimilar to pre-

TABLE 8
FREQUENCY DISTRIBUTION OF THE NUMBER OF TIMES EACH TRAIT NAME IS INVOLVED IN A SHIFT IN ITEM COEFFICIENT 2.0 OR LARGER FROM THE SECOND TO THE THIRD POINT OF VIEW

Trait number	Trait name	Frequency	Trait number	Trait name	Frequency
1	Humorous	0	26	Unemotional	2
2	Tense	2	27*	Predictable	9
3	Active	2	28	Relaxed	2
4*	Dishonest	7	29	Youthful	4
5	Unsociable	1	30	Changeable	1
6	Selfish	4	31	Awkward	1
7	Graceful	1	32	Brave	1
8*	Weak	4	33*	Aggressive	6
9**	Naive	4	34	Cooperative	2
10	Unintelligent	2	35	Sociable	0
11*	Passive	8	36*	Irrational	5
12	Unusual	2	37	Competitive	2
13	Mature	4	38**	Optimistic	3
14	Interesting	2	39	Honest	4
15*	Submissive	5	40	Aimless	2
16*	Rational	3	41	Sensitive	1
17	Emotional	1	42	Stable	3
18	Cowardly	3	43*	Unpredictable	4
19	Proud	3	44	Intelligent	2
20	Strong	3	45	Pessimistic	0
21	Insensitive	4	46**	Sophisticated	3
22**	Unselfish	3	47*	Domineering	11
23	Humble	0	48*	Defensive	6
24	Motivated	1	49	Serious	0
25	Typical	3	50*	Uninteresting	6

* Trait names that seem to be principally responsible for the shift in point of view.
** Trait names that seem to be secondarily responsible for the shift in point of view.

dictable, cooperative, and stable. Submissive on the second point of view was similar to weak and passive, and dissimilar to proud, competitive, and domineering. But on the third point of view it was perceived as not quite as weak, and not so opposite to proud, competitive, and domineering. After the shift, weak was perceived as being not quite so submissive and more dissimilar to typical and defensive. And, finally, uninteresting became more similar to dishonest, not typical, not predictable, and not defensive.

D. Discussion

The implications of these results are of considerable importance. Unfortunately, experimental contingencies resulted in partial data so that a precise structuring of the perceptual space for the idealized individual (i.e., the second point of view) and the nature of shift in trait relations by the person high on the third point of view was not possible. But the results obtained from the

less rigorous procedures utilized (although they may be less complete and less precise than desired) are sufficiently clear that some important conclusions may be drawn.

In the first place, there seems to be ample evidence that one of the principal ways in which individuals differ in their perceptions of the relationships between traits, and hence of other people, is a dimension that is closely related to what has been called the authoritarianism of the individual. The authoritarian personality syndrome appears to be basic in the determination of how a person perceives other persons. In the case of authoritarian subjects, traits are defined differently and are perceived in different relationships to each other. Furthermore, these differences are restricted to a number of traits that are of importance to the authoritarian and to which he is sensitized. Other traits in the repertory of traits constituting his "implicit personality theory" are perceived in relationships that are much the same as those of the nonauthoritarian. Stating it another way, the perceived trait relationships of the authoritarian are similar to those of the nonauthoritarian except for a nucleus of traits that have special meaning for him, which meaning can be conceived of as a shift away from a more conventional view. In the model employed in the present research the shift is additive. Given fixed amounts of the conventional point of view, the trait relationships that exist for the authoritarian are equal to item coefficients of similarity for the conventional point of view *plus* an amount of the item coefficients of shift. And the amount of the item coefficient of shift that is involved depends upon the individual's extent of authoritarianism.

It is of interest that these findings were obtained in the absence of any theoretical preconceptions on the part of the investigator. This supports the logical validity of the concept of the authoritarian personality.

An attempt has been made to specify the nature of the perceived trait similarity that exists for the traits that are critical for the authoritarian. The nature of the data has required that these specifications be incomplete. However, the data were sufficiently complete to convey the general structure of trait relations for the authoritarian. Subsequent investigations of a more refined nature should result in an even clearer description of the trait relationships that exist for the authoritarian.

The structure of trait relations that was found above contributes to a more thorough understanding of the "implicit personality theories" of authoritarians. It has been reported (16) that the authoritarian (*a*) has an inability to seriously criticize anyone in his ingroup, (*b*) idealizes representatives of authority, and (*c*) has a submissive relation to such representatives. At the same time, the authoritarian tends to exercise personal power over others who play

a deferent role. Submission does have a unique meaning for him. The role of submission for the authoritarian personality has been extensively discussed by Fromm (17). He has suggested that the mechanism behind authoritarianism is the desire to give up the independence of self and to identify with somebody or something outside of oneself in order to acquire strength. This giving up of independence or "escape from freedom" may be accomplished either through domination or submission. The authoritarian admires authority and tends to submit to it, but at the same time he wants to be an authority himself and have others submit to him. Fromm has stated that:

> power fascinates him not for any values for which a specific power may stand, but just because it is power. Just as his "love" is automatically aroused by power, so powerless people or institutions automatically arouse his contempt. The very sight of a powerless person makes him want to attack, dominate, humiliate him (17, p. 168).
>
> The authoritarian character does not lack activity, courage, or belief. But these qualities for him mean something entirely different from what they mean for the person who does not long for submission (17, p. 172).

Activity in the foregoing sense means to act in the name of something higher than one's self. Perhaps this explains his view of submissive being unrelated to passive; not quite so similar to weak; and not so opposite to proud, competitive, and domineering. Since he submits to authority figures, submission must not be so "bad." This also is relevant to his view of domineering as more positively evaluative and shorn of its "cruel" aspects. This is reflected in the F Scale item "Every person should have complete faith in some supernatural power whose decisions he obeys without question."

Also the uninteresting person is he who is dishonest, unusual, and unpredictable. This suggests that that which is ambiguous to the authoritarian is uninteresting. He tends to prefer a structured world. These findings are consistent with the suggestion by Frenkel-Brunswik (15) that "tolerance–intolerance of ambiguity" is the unifying construct of the authoritarian personality. This is corroborated by the correlation of .29 obtained between intolerance for ambiguity and authoritarianism. The basis for this in his personality dynamics is probably his "projectivity"—disposition to imagine strange, evil, dangerous, destructive forces at work in the outer world. The basis of this projectivity is ascribed to be projections of deep-lying sexual and aggressive strivings; hence the more structured the world, the less able he is to perceive threats. Because he is threatened, he is defensive. This probably accounts for the perceived similarity of defensive to strong, mature, interesting, honest, and graceful. The world is a hostile place and thus one must be defensive. In fact, it is good to be

defensive. This attitude is expressed in one of the F Scale items. "Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them."

Aggression, too, has a particular meaning for the authoritarian. Just as it is unacceptable to dominate one's ingroup, it is unthinkable to display aggression against one's family. On the other hand, he feels that ". . . homosexuals should be severely punished. . . ." Aggressive was perceived as similar to selfish, tense, and less sociable by the conventional person; but the authoritarian perceived, honest, unselfish, mature, and sociability to be similar to aggressive.

The less intelligent authoritarian also perceives rational in a rather different way as compared to the conventional way. Perhaps, because he is less intelligent, he perceives the rational person as more similar to individuals who are domineering, active, interesting, and brave rather than similar to more intellectual traits.

An attempt has been made in the above discussion to relate some of the known characteristics of the authoritarian personality to the structure of trait-name relationships as they are perceived by individuals scoring high on the third point of view. These relations have been drawn in a sketchy way to show some speculated interrelations between existing knowledge about the authoritarian and his "implicit personality theory," as defined by his perceptions of trait relationships on a few critical trait names. There is some evidence that these interrelations are consistent and meaningful. The most important findings, however, are that individuals who have large individual coefficients on the third point of view are relatively unintelligent authoritarians, that they have an "implicit personality theory" that is disparate from that of a conventional person, and that their alterations in perceived trait similarity occur in a manner that is both meaningful and predictable.

E. Summary and Conclusions

Several interesting and important developments and results have been reported in the present research. Principal among these are the following:

1. The analytic procedure developed by Tucker and Messick (45) based on a procedure developed by Eckart and Young (13) has been successfully applied to the investigation of "implicit personality theories" and appears to be a promising methodology for future investigations in this area. It provides "dimensions of variety among the individuals, or different points of view about stimulus similarity," and yields item coefficients or measures of dissimilarity for

pairs of stimuli for each point of view as well as individual coefficients on the dimensions.

2. Individual differences in perceived personality-trait similarity as measured by the trait-similarity rating scale are such that they can be accounted for by a small number of reliable dimensions.

3. A procedure developed by Dr. Ledyard R. Tucker, and based on the procedure for obtaining coefficient alpha, was utilized. It determined composite factors that are maximally reliable for the case when several factor solutions for the same individuals on different variables are in existence.

4. Composite dimensions rotated orthogonally according to considerations similar to simple structure were found to represent meaningful points of view regarding perceived personality-trait relationships. Three such reliable points of view were found. Considerations led to the interpretation of the three points of view as (*a*) a response set, (*b*) a conventional point of view, and (*c*) a shift from the conventional point of view to an authoritarian point of view.

5. An examination of the item coefficients led to the interpretation of the first point of view as a response set to mark the low end of the rating scale used in the present experiment.

6. A subjective factor analysis was conceived, and it determined the structure of the item relationships for the conventional point of view. From the subjective factor matrix seven factors were identified: social desirability, mental potency, emotionality, stability, sociability, sophistication, and greedy. These factors seemed to account for the structuring of perceived trait relations or perceptual space for the person high on the conventional point of view.

7. The change in the perceptual space of the authoritarian was examined by adding the larger item coefficients for the third point of view to the corresponding items for the second or conventional point of view. Though the investigator had no preconception concerning the differences in the "implicit personality theory" between authoritarians and nonauthoritarians, the data impelled him to conclude (*a*) that one of the principal ways that individuals differ in their perceptions of the relationships between traits, and hence of other people, is a dimension that is closely related to what has been called authoritarianism; (*b*) that the traits that are defined differently for the authoritarian are restricted to a relatively small number that are particularly meaningful to him; (*c*) that the nature of the perceived personality-trait relations that are unique for the authoritarian bears an additive relationship to that of the conventional or nonauthoritarian point of view according to the model employed in the present analysis; and (*d*) that the methodology and results contributed

to an understanding of the perceived personality-trait relationships or the "implicit personality theory" of the authoritarian personality.

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HOW PEOPLE PERCEIVE EDUCATIONAL TELEVISION: A STUDY IN COMMUNICATION* [1]

New York City

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A. THE PROBLEM

The problem that gave rise to this study was the nature and extent of the differences between the viewers and nonviewers of an educational television station in a large northeastern American city in which there are several universities. This problem is important because of the extent to which the country's educational communicators and stations are seeking to develop larger audiences for the television programs they are transmitting. If viewers and nonviewers are fairly similar in significant respects, it is likely that a much larger group of television-set owners may become viewers of educational programs. If the two groups appear to be substantially different, the likelihood of a minority group continuing to view educational television programs will be great. With the Federal Government spending $32,000,000 on facilities for educational television over the next several years, the number of such facilities will increase, along with the need to optimize their operations.

B. METHOD AND RESPONDENTS

The study was conducted by telephoning a large probability sample of persons in the city ($N = 2720$). Each individual was asked if he owned a television set. He was also asked if he had viewed the educational channel in the preceding three weeks and, if so, to identify at least one program he had seen. Subsequently, personal interviews were conducted in the homes of 392 persons who will be referred to as "viewers." To secure a control group, one person living immediately next door to each viewer was also interviewed. The next-door neighbor was first asked if he had viewed the station. In 37 cases, the answer was "yes"; so the next neighbor was interviewed. (The rationale for this procedure is that the person living next door to a viewer is likely to be

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roughly of the same age, family situation, and socioeconomic status as the viewer.) Eventually 392 nonviewers were secured. But every viewer and every nonviewer possessed a television set.

C. Results

The respondents who were viewers were classified in terms of their socioeconomic status, income, residence, occupation, and voluntary association memberships. Nine per cent were classified as lower class; 29 per cent, lower middle class; 54 per cent, upper middle class; and eight per cent, lower upper class. There were no significant differences between the viewers and nonviewers in terms of their socioeconomic status. However, although both groups have families of approximately the same size and composition, viewing the educational station tends to be more of a feminine than a masculine activity.

Viewers tended to be persons with more schooling who were engaged in more specialized occupations than were nonviewers. The nonviewer tended to be a skilled, semiskilled, or managerial worker who had completed high school and who had attended college or a technical school. The viewer tended to be a semiprofessional or a higher level managerial functionary, with more college training.

Inasmuch as, in the sample of nonviewers interviewed, there were a number of persons (six per cent) whose vocation had some relationship to education and matters intellectual (professors, teachers, writers), it is of interest that *not one* of them could be described as a viewer of the educational station. It may be speculated that such intellectuals do not depend on a mass medium, like television, for educational content because they feel that they have already acquired the education they need for their work. In contrast, the typical viewer of the educational channel is likely to be acquiring educational content not necessarily for the sake of his occupation but for the sake of the cultural satisfactions it affords.

There is a difference between the amount of time given to television viewing as an activity by viewers and nonviewers. The latter use the medium for an average of 3.4 hours a day in contrast to an average of 2.7 hours daily for the viewer. Like all other differences between the two groups, the differences (unless otherwise indicated) are statistically significant at or beyond the .05 level. The typical viewer of the educational channel tuned in 1.2 times a week. He had one favorite program that he saw once a week.

On the average, nonviewers bought their television sets two years before the viewers had done so. Some of the viewers (four per cent) said that they had bought their television sets specifically to watch the educational channel.

Other media activities and preferences of the two groups differ. Nonviewers tend to read more of general information and popular exposé magazines, like *The Reader's Digest* and *The Saturday Evening Post*. Viewers tend to read magazines like *The New Yorker*, which convey feelings of superiority and an attitude of knowledgeability rather than the kind of explicit information that it found in the more popular magazines.

Among the differences between the two groups is a preference for different daily newspapers. The newspaper that was preferred by the great majority of viewers (71 per cent) was of mildly liberal leanings. It was opposed to the established Democrats who controlled the local government. It carried columnists like Joseph Alsop and Walter Lippmann. A news analyst on the educational station had previously been associated with the newspaper. Fifty-nine per cent of the nonviewers read a newspaper that supported the local Democratic administration but that was slightly right of center on national political matters.

Although the nonviewers earned approximately the same income per year as the viewers, it is perhaps significant that the nonviewers own more major electrical appliances than do the viewers. Thirty-six per cent of the viewers own dishwashers, 44 per cent own deep-freeze units, 37 per cent own automatic washers, and 27 per cent own garbage-disposal units. The comparable figures for nonviewers are 54, 55, 49, and 41 per cent, respectively. Clearly, the nonviewers are far more likely to buy electrical appliances, perhaps reflecting their greater exposure to commercial television. On the average, the automobile owned by the nonviewer is 1.1 years more recent than the automobile owned by the viewer, further confirming the tendency of nonviewers to buy more appurtenances of modern living.

It had been hypothesized that there would be a difference in the level of aspiration of the two groups. As one clue to the level of aspiration of viewers and nonviewers, each interviewee was asked whether he expected to do as well, not quite as well, or better than most people in the next 10 years. Viewers were more likely than nonviewers to believe they would do better (50 per cent *vs.* 31 per cent). They were more likely than nonviewers to think they would do about as well (57 per cent *vs.* 30 per cent). They were slightly less likely to think they would *not* do as well (18 per cent *vs.* 20 per cent), although this difference is not statistically significant. Nonviewers of educational television seem to have a substantially more attenuated vision of their future than do viewers.

Sociability was another area in which it was thought that the two groups might differ. Although there was no significant difference between the marital

status of the viewers and the nonviewers, the nonviewers engage in conversations about their television viewing whereas the viewers do so to a lesser extent. Sixty-eight per cent of the nonviewers had discussed a television program in the preceding three weeks with at least one person outside the family. They discussed the program in general (37 per cent), its quality (26 per cent), its specific merits (20 per cent), "Did you see . . . ?" (16 per cent), or other aspects (17 per cent) with others. Only 37 per cent of the viewers had discussed a television program with someone during the same period. Thirty-nine per cent of the nonviewers, but 17 per cent of the viewers, said that they "often" discussed television programs with others. The viewers' relative eschewing of social satisfactions from television can be seen in the situation in which they use their sets. Twenty-six per cent of the viewers "usually" do not watch television with their families, in contrast to 10 per cent of the nonviewers.

A number of the avocations reported by viewers were relatively solitary, as compared with the avocations of nonviewers. The incidence of some avocations among viewers and nonviewers is as follows: bird watching, seven per cent, two per cent; chess, 16 per cent, 11 per cent; travel, 17 per cent, 12 per cent; photography, 19 per cent, 11 per cent; music, 19 per cent, seven per cent; and reading, 35 per cent, 13 per cent. Except for bird watching, each of these differences is statistically significant.

In terms of the manner in which the two groups hear about television programs—the nonviewers rely on interpersonal sources of information to a greater extent than do viewers. The nonviewers say they are usually introduced to a program by friends (55 per cent), newspapers (32 per cent), television publications (12 per cent), promotional slides (three per cent), and a few (one per cent) who "just tune in." In contrast, viewers said that they typically tuned in a program after discussing it with friends (eight per cent), newspapers (53 per cent), television publications (22 per cent), and "just tune in" (17 per cent). Clearly, the viewers are likely to have fewer social relationships with others than are the nonviewers.

When asked to identify a favorite television program and to state why it was liked, 38 per cent of the nonviewers said, "I just liked it"; 32 per cent mentioned entertainment; 30 per cent mentioned relaxation; 19 per cent mentioned variety; 11 per cent said the program "calmed" them; eight per cent mentioned humor; five per cent mentioned talent; four per cent mentioned suspense; three per cent mentioned music; and three per cent mentioned the "characters." Viewers liked the challenge (19 per cent), getting information (16 per cent), learning something (13 per cent), keeping up with things (10

per cent), hearing a good lecture (eight per cent), learning something about science (six per cent), and stimulating (five per cent). Four per cent said, "it's different," four per cent said, "it's not wasting time," and three per cent said, "it's not relaxing." Clearly, the qualities associated with a favorite program by the two groups are different, with the viewers stressing the cerebral aspects of the program, while the nonviewers note more general aspects of its ability to satisfy and relax.

One clue to the difference in the way viewers and nonviewers perceived the educational television channel can be seen in their answer to the question "How would you describe Channel 2?" The 81 per cent of the nonviewers who could answer the question described it as follows: "educational" (55 per cent), "has college professors" (51 per cent), "like school," (50 per cent), "dull" (42 per cent), "amateur" (32 per cent), "current" (31 per cent), and "interesting" (30 per cent). In contrast, the viewers described it as intellectual (65 per cent), "stimulating" (51 per cent), "interesting" (41 per cent), "educational" (16 per cent), "like school" (29 per cent), "has no commercials" (22 per cent), and "has college professors" (four per cent). There is a difference in the perception of the educational channel by the two groups, with the nonviewers tending to use terms that are either negative or only formally positive and the viewers tending to use relatively enthusiastic designations.

The ubiquitous nature of television commercials made it seem likely that attitudes toward them would differ in the two groups. There were differences between the nonviewers and viewers in terms of their impression of the amount of time devoted to commercials during a typical hour. The average nonviewer estimated that commercials took nine minutes in an hour. The average viewer estimated that commercials took 13 minutes. The estimates ranged from two to 20 minutes. Attitudes toward the commercials themselves also differed in the two groups. Nonviewers said they were a necessary evil (35 per cent), depended on the program (26 per cent), the sponsor gets his money's worth (17 per cent), sometimes told about good products (six per cent); while 41 per cent made some negative comment ("interrupts program," "too long," "too cute," or "repetitious"). In contrast, 52 per cent of the viewers made negative comments on commercials, and only eight per cent saw them as a necessary evil. Five per cent said the sponsor got his money's worth, and six per cent said some of the products were good. The viewers had a much less tolerant view of commercials than did the nonviewers, reflecting their lesser acceptance of commercial television and of the marketing structure that it represents.

It had been hypothesized that the kinds and range of satisfactions afforded

by television would be different in the two groups. To viewers, the satisfactions afforded by the television experience appear to provide less pleasure than those provided to nonviewers. Eighty per cent of the nonviewers said they derive "a great deal" of pleasure from television, with 13 per cent deriving "some," and seven per cent getting "little" pleasure from the medium. In contrast, 33 per cent of the viewers reported "a great deal" of pleasure; 42 per cent, "some" pleasure; 15 per cent, "little" pleasure; and 10 per cent, "no" pleasure from television.

The viewers' television satisfactions apparently are experienced in a relatively narrow range, with fewer peaks and valleys than those perceived by nonviewers. When asked about the relative amount of satisfaction provided by one television program as compared with another, 58 per cent of the viewers said that it was "the same," 21 per cent said that it "was different," 11 per cent said that "it varied," and 10 per cent could not answer. Of the commercial television audience, however, nine per cent said that the satisfactions provided by one program compared with another are "the same," 64 per cent said that they "were different," 22 per cent said that "they varied," and five per cent did not answer.

The relationship of mood to viewing provided another dimension of difference between the two groups. Seventy per cent of the nonviewers and 52 per cent of the viewers said that their mood affected the manner in which they responded to programs, while 20 and 14 per cent respectively said that mood was not relevant. Ten per cent of the viewers and 34 per cent of the nonviewers turned the question around and said that viewing a program affected their mood. Viewing commercial television programs is either a more labile activity or attracts more labile viewers than educational programs.

In terms of traditional psychoanalytic mechanisms, nonviewers seem to derive emotional satisfactions (like identification, catharsis, displacement, and release of aggression) from their viewing of commercial television. Such satisfactions have a broad base and are deep rooted. In contrast the viewer, when asked what he liked most about his favorite educational program, gives a more attenuated kind of response: "You know more about Shakespeare from that," or "The program helps you know more about science," or "You learn a language." The comments of the viewers are likely to be couched in the second or third person and to refer to information. The comments by nonviewers suggest that commercial television programs are experienced as more egosyntonic than those of the educational viewers. Because of the limited range of the responses, it was very difficult to apply the psychoanalytic mechanisms to what the viewers said in response to this question.

Asked what changes they would like to see on television, 15 per cent of the nonviewers, but 31 per cent of the viewers, said they would like to see fewer old films. Three-fourths of the nonviewers and 58 per cent of the viewers wanted more and better drama. Half of the nonviewers and 32 per cent of the viewers wanted good comedy. Twenty-one per cent of the viewers and 16 per cent of the nonviewers wanted more programs that are entertaining as well as worthwhile. Interesting and worthwhile programs for children were cited by 21 per cent of the viewers and 19 per cent of the nonviewers as desirable goals. These differences in the two groups suggest that their visions of what television might be are at variance from each other.

D. Discussion

From the point of view of the communicator, the most significant single finding of this study is that the audiences for commercial television and that for educational television differs radically. Even though the factor of socio-economic status was held constant (by the procedure of interviewing the person next door), the differences between the viewers and nonviewers were many and significant.

Viewers and nonviewers differ in a number of ways. Viewing tends to be a feminine activity. The viewers, though earning income roughly comparable to that of the nonviewers, have occupations of higher status. Viewers spend less time with television, and their preferred magazines and newspapers differ from those of nonviewers. Nonviewers have fewer electrical appliances and automobiles than viewers, although the latter have a higher level of aspiration. The viewer tends to be a more solitary person who relies less on others. The satisfactions provided by educational and commercial television are different, as is the range of experience perceived by the two groups via television.

Viewers are clearly possessors of a significantly higher level of aspiration than nonviewers, although the latter own more recent automobiles and electrical appliances. It is possible that the viewers are husbanding their financial resources for purchases, like a better home. Thus, they may not be spending money on appliances or new cars, though such purchases are traditionally associated with upward mobility. This ability of the viewers to defer gratifications for the sake of a future goal, traditionally linked with upward mobility in American culture, can be seen clearly in their comments about the station's language lessons. The majority of those viewers who watched programs on foreign language lessons, which were among the most popular programs, never expected to use the language; yet, as one viewer said, "You know you've learned something, immediately after each program." There is the immediate

reward of having learned something, even though it will not be used until some future date, if ever. Although such knowledge was largely nonutilitarian, it had a relatively immediate and specific appeal.

The viewer responds purposefully to the opportunities provided by the station. His delimited relationship to the station is seen in his viewing typically only one program a week. He has a more constricted range of affect in his response to the television medium in general and gets fewer fantasy and emotional satisfactions from the medium than does the nonviewer. The thinner range of experience modalities offered by educational television is partly a function of the classroom connotations of education and partly a reflection of the manner in which an educational station is perceived. This in turn is a reflection of the manner in which education is perceived in our culture. It is possible that many potential viewers of the station are deterred by the "educational television" label. We may speculate that there may be some merit in the station's identifying itself simply as "Channel 2" or in laying less stress on the "educational" label. Such identification may help broaden the base of its audience. So long as a formal "educational" label is explicitly attached to the station, the conflict between the connotations of education and of television will be deepened in terms of audience perceptions.

The audience for educational television consists essentially of persons who approach it as education first and only secondarily as television. But there is a limited minority of the population that is likely to wish to use television for educational purposes. This emerges clearly in comments by the educators and intellectuals who were nonviewers, but who voiced their feelings about the inappropriateness of the television medium for education. Many did not like the medium, while others felt that the station had adulterated its goals in order to reach a larger public. A number of educators who were classified as nonviewers noted that they had watched some of the station's original or early programs but stopped viewing them because their expectations had not been met. The least substantial comments about any incompatibility between education and television came from the lower-class viewers. Their relatively smaller amount of contact with formal education may have led to their being relatively less concerned about the format in which educational material was communicated.

It appears likely that attitudes toward educational television are essentially related to attitudes toward education on the one hand and toward the television medium on the other, rather than on a perception of the amalgam of the two. The attitudes toward either education or television are not very likely to

change, so that attitudes toward the medium of educational television are not likely to change.

A number of nonviewers clearly did not know much about the educational station or were misinformed about it. It would seem that wider dissemination of information about the station would serve to make its existence more likely to be appreciated by some persons who are not currently viewers and who might use it.

Seeking to make educational television more "acceptable" by diminishing its educational content in the hope of broadening the base of its appeal is a method unlikely to achieve the desired goal. Educational television, however, may be able to obtain more viewing time from those persons who are already in its audience. Even within such a minority audience there is probably a considerable diversity of interests to which programmers may appeal.

How large is the minority audience for educational television? Any one program may reach an average of from one to five per cent of the sets. Throughout the country, it would seem that an average of somewhere between 20 and 40 per cent of the television-set owners make some use of educational stations. This minority is sufficiently large to include many different subgroups. If this minority increased its educational-television viewing, the increase would represent a major increase in the time devoted to education in America. Meeting the needs of those already viewing by more programs to their liking would be a major contribution, even if the viewing audience acquires no new members.

The results of this study suggest that educational television may have suffered because it has tried, perhaps, to straddle two incompatible goals. This ambivalence has led to a partial alienation of some of the very elements of the audience that might be consumers of educational television. Educational television is perceived as not being competitive with, but as being different from and supplementary to, commercial broadcasting. An understanding of such dimensions may help educational television to communicate more effectively with its audiences.

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A METHODOLOGICAL STUDY OF THE EFFECTS OF PROPAGANDA*

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A. INTRODUCTION

The purpose of this study was the simultaneous comparison of two kinds of *prestige* and five degrees of propaganda *strength* in terms of their effect on college students' attitudes toward a sociopolitical question: namely, a world police force. The emphasis was methodological. The assessment of the attitude in question was incidental.

Murphy, Murphy, and Newcomb (12) have summarized some of the pertinent studies. Annis and Meier (1), Biddle (2), Hartman (5), and Wilke (13) used various written and oral materials as propaganda, and measured results in terms of attitude scales. Lorge (9), Marple (10), and Kulp (7) investigated the effects of prestige and majority opinion on attitude change. Janis and Feshbach (6) studied the effects of the degree of fear-arousing messages.

In the present study, both the strength-direction of the propaganda and the source to which it is attributed were "measured" simultaneously. Additionally, following McNemar's suggestion (11), net changes in attitude score rather than the score itself is the variable.

B. PROCEDURE

A proposal for a strong international government backed by a powerful international police force was chosen as the basic message to be propagandized. The separate and combined effects of two propaganda techniques were investigated: first, the relative influence of two kinds of prestige—scientific versus religious sponsorship of the message; second, the relative influence of the intensity of the message, varying from "very strongly for" to "very strongly against" the proposition.

1. *Subjects*

The subjects were 331 students from 13 classes at Tulane University. These

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classes represented anthropology, economics, history, philosophy, political science, and sociology. In fact, all classes that could be called social-science classes meeting at the same hour on each of two days were included in the study. Classes were exclusively male or of both sexes. No all-female classes were tested. Educational level ranged from freshman to graduate student.

2. *Materials*

a. The propaganda. Three items need consideration. The prestige variable, the intensity variable, and the final product.

(1). *The prestige variable.* Designated as sponsors of the presented materials were the following fictitious organizations: "The American Council of Physical, Biological, and Social Scientists"; "The American Inter-faith Council of Catholics, Protestants, and Jews." It was hoped that such titles came close to opposing the concepts of science and religion on relatively equal terms.

(2). *The intensity variable.* After consulting various sources, 13 pieces of propaganda, each between 600 and 700 words, were prepared. Minimum standards of grammar and logic were imposed. The content was intended to be unrelated to either one of the two prestige groups because any given piece was to be ascribed to each prestige group in the study. "Vivid-dull," "simple-complex," and "pure-mixed" continua were employed to produce blurbs varying in apparent effectiveness and direction. The pure-mixed term represents, on the one hand, an exclusion of the opposition and, on the other, giving the opposition an equal voice. The 13 blurbs were randomized and submitted to nine "experts" who were expert in the sense that they were knowledgeable about (*a*) persuasion theory and practice, (*b*) the interests and rational level of the "average Tulane student," and (*c*) world-government theory. The judges were instructed to rank the blurbs from the "most effective against" to the "most effective for" the international plan. Rank-difference correlations among the rankings ranged from .69 to .95, with a median rho of .90.

(3). *The final product.* From the consensus of the rankings, five blurbs falling at widely but evenly separated points on a scale from one to 13 were chosen for use. The median scale values of the blurbs chosen were 1.5, 4.0, 7.0, 10.5, and 12.5. The blurbs were printed in booklets with two "outsides" (denoting scientific or religious sponsorship) and five "insides" (one of five blurbs varying in intensity and direction) on a good grade of paper. The form was that of a folder with sponsorship credit (plus an illustration) on both the front and back pages.

b. The attitude scale. The scale was designed to measure strength of atti-

tude, the dependent variable of the study. The authors desired two alternate forms of the scale, each form to have a reliability coefficient not less than .80 and wished the time for administration to be held to 10 minutes. The Likert method of scale construction (8) was employed. Briefly, the steps were as follows:

1. An 11-point scale of attitude toward world government was administered to 40 students who were not to be included in the main study. They were requested to discuss their answers fully.
2. 247 statements of opinion were extracted from the protocols.
3. All but 50 statements were eliminated on the basis of duplication, complexity, ambiguity, etc., and 10 additional statements were written to fill out a list of 60.
4. The 60 selected statements were readministered to 123 students (also not to be included in the main study) with instructions to rate each statement on a five-point scale from "strongly approve" to "strongly disapprove." Each student's paper was then scored for strength of attitude.
5. From the responses of the 123 students, 28 items were selected as those that discriminated most effectively the highest and the lowest total scores on the complete list.
6. The 28 items were distributed between two forms, 14 items to each form.
7. The forms, designated Form A and Form B, were administered in counterbalanced order to two new groups of subjects with *N*s of 29 and 28 respectively. Results are given in Table 1.

The equivalent-forms correlations are the "coefficients of equivalence" given by Cronbach (3) as $r = 2\,(1 - [(S_A^2 + S_B^2) \div S_T^2])$. Subscripts A and B

TABLE 1
RESULTS OF INITIAL EQUIVALENCY TEST OF FORMS A AND B

Number of pairs	Form	Mean	*SD*	Median	Reliability coefficient	Corrected *r*	$M_a - M_b$
		Form A Given First, Then Form B					
29	A	54.21	8.02	54	.72	.83	3.97
	B	50.24	6.55	49			
		Form B Given First, Then Form A					
28	A	55.21	5.58	56	.66	.78	4.21
	B	51.00	7.58	50.5			

refer to the forms. T refers to the total. The difference of 3.97 points between M_A and M_B on the AB order of presentation was assumed to be a constant estimate of the difference that would recur on future administrations.

c. Administration. Class instructors administered the experimental materials. The instructors were given detailed mimeographed instructions on the procedure to be used. To get the preliminary attitude measurement, form A of the attitude questionnaire was distributed during the last 15 minutes of each of the fifteen 10 o'clock classes. Two days later, Form B was administered to the same classes. A control group of two more classes received no interpolated propaganda. The experimental groups, 13 classes, were given the propaganda blurbs before they were asked to complete Form B. For these experimental groups, the instructor read aloud the first page of the blurb and emphasized the name of the sponsors and attempted to gain student rapport. The subjects were then allowed 20 minutes to read the blurbs and to record their attitudes. They were permitted comment after the questionnaires were collected; then they were told that the blurbs had been fabricated for experimental purposes.

C. Results

The net changes in attitude by type of blurb and by sponsorship are given in Table 2. Also included are the *N*s for each sample, the standard deviations of the original attitude-scale scores, and the standard deviations of the change scores. Each net change has been adjusted for the 4.26 increase found for Form B form in the AB administration. The figure 4.26 was determined for the two control classes and is used in preference to the 3.97 difference found when the forms were standardized with other students.

At first glance, the data in Table 4 show puzzling changes with strength of blurbs, and these changes are not consistent for the two kinds of sponsorship. We are interested in determining (*a*) whether or not strength of blurbs makes a difference if all samples are equated for sponsorship, (*b*) whether or not sponsorship makes a difference when all samples are equated for strength of blurbs, and (*c*) whether or not there are any joint effects when sponsorship and blurbs are allowed to interact. An analysis-of-variance approach enables us to answer all three questions. First, however, it should be noted that the net overall change of .53 scale points is significantly different from zero at the one per cent level ($t = 40.7$) and that both the net change for scientific sponsorship (.85) and the net change for religious sponsorship (.25) are significantly different from zero ($t = 30.3$ and 10.2). Further, the significant overall increase in favorable attitude toward a world police force occurs even

TABLE 2*
CORRECTED NET CHANGE IN ATTITUDE SCORE BY "BLURB" (INTENSITY) AND BY GROUP (SPONSORSHIP)

Statistic	Blurbs I	II	III	IV	V	Total
			Science			
N	30	26	22	26	28	132
Mean change	2.66	1.69	.03	— .82	.33	.85
SD_A	9.25	7.13	7.67	7.58	6.89	8.03
SD_B	7.99	8.88	7.88	9.21	7.10	8.34
SD_{change}	.74	.78	.74	.80	.59	.32
			Religion			
N	21	30	24	40	34	149
Mean change	2.88	— 1.07	1.47	— 1.79	1.35	.25
SD_A	6.70	10.15	8.32	8.79	7.09	8.46
SD_B	5.65	9.97	6.13	9.62	6.90	8.33
SD_{change}	.64	.82	.79	.66	.54	.31
			Total			
N	51	56	46	66	62	281
Mean change	2.75	.21	.78	— 1.41	.89	.53
SD_A	8.32	9.14	8.02	8.60	7.06	8.27
SD_B	7.14	9.51	7.04	9.81	7.00	8.36
SD_{change}	.51	.56	.52	.53	.40	.22

* A positive change indicates more favorable attitude. Blurbs ranked from I to V represent intensity of "most effective for" to "most effective against." Standard deviations are based on raw scores.

though four of the 10 samples were exposed to propaganda *against* the world police force.

The results of an analysis of variance of the change scores are given in Table 3. It is apparent that the interaction of sponsorship and strength of message is highly significant. The interaction problem must be dealt with first. Otherwise it is not possible to interpret the sponsorship and message effects unambiguously.

To facilitate discussion, Table 4 is presented. In Part *A* of the table, the data are adjusted so that the effects of sponsorship and strength of message are held constant: i.e., all row and column means are equal to the overall net change of .53. In Part *B* of Table 4, the overall net change has been deleted, leaving the interaction of sponsorship and strength of message around a neutral point. In other words, Part *B* shows the isolated interaction effect, the effect found significant by the analysis of variance. Finally, in Part *C* the interac-

TABLE 3
ANALYSIS OF VARIANCE OF CHANGE SCORES

Source	Sum of squares	*df*	Mean square	*F*
Sponsors	59.14	1	59.14	74.86*
Intensity	371.32	4	92.83	11.75*
S × I	194.69	4	48.67	61.61*
Residual	213.37	271	.79	

* Significant at 1% level.

TABLE 4
ADJUSTMENT OF DATA TO SHOW INTERACTION

Prestige source	Blurbs I	II	III	IV	V	Mean
	Part A. Row and Column Means Equalized					
Science	.63	1.69	— .53	1.12	— .37	.53
Religion	.42	— .48	1.52	.15	1.28	.53
Mean	.53	.53	.53	.53	.53	.53
	Part B. Overall Gain Removed from Data Leaving Interaction Around the Neutral Point					
Science	.09	1.17	—1.05	.59	— .90	.00
Religion	— .12	—1.02	.97	— .39	.75	.00
Mean	.00	.00	.00	.00	.00	.00
	Part C. Original Data Corrected by Removing Extraneous Interaction Effect					
Science	2.57	.52	1.03	—1.41	1.23	.85
Religion	3.00	— .05	.51	—1.40	.60	.25
Mean	2.75	.21	.78	—1.41	.89	.53

tion has been removed from the original data, leaving only the effects attributable to sponsorship and strength of message *without* any joint action; hence in Part *C* of Table 4 the row and column means are the same as in Table 2.

A significant interaction can arise from one or from a combination of three sources:

1. *Extrinsic* interaction. This is bias introduced in collection of the data: i.e., experimental error. Extrinsic interaction is not related to the variables of interest.

2. *Intrinsic* interaction. This interaction arises because of correlation among the principal variables—in the present case, between type of sponsorship and strength of message. With this type of interaction the interpretation of the main effects must be modified by the nature of the interaction.

3. *Error* interaction. This is random error. In the present case the chance of the interaction term being found significant is one in 100: i.e., the level of significance adopted.

We eliminate error interaction as an explanation on the basis that the probability of its occurrence is too low. Could the interaction be intrinsic? Do sponsorship and strength of message interact? We can make a guess by examining the data in Part *B* of Table 4. The interaction, if intrinsic, should have some plausible rationale. We find that the neutral message and the message "strongly against" have a negative effect for the scientific sponsorship; whereas the "strongly-for," "moderately-for," and "moderately-against" messages have a negative effect with the religious sponsorship. The authors can think of no plausible explanation for such effects *over and above* the simple effects of sponsorship and strength of message; hence we discard intrinsic interaction as an explanation.

If the interaction is extrinsic, it is due to experimental error, i.e., to uncontrolled factors affecting the scores differentially in the 10 samples. Such factors might have been the nature of the students, the type of class material previously presented, the method of administration, etc. At any rate, we want to eliminate this experimental error in interpreting the data, and this is what Part *C* of Table 4 permits us to do. Our conclusions are as follows:

1. For all positively toned propaganda, the religious and scientific sponsorships were about equally effective in producing changes in the desired direction.

2. For neutrally toned propaganda—i.e., simple exposure to the "facts" about world police force—the scientific sponsorship produced significantly greater change in the "favorable" direction ($t = 2.21$, $df = 46$).

3. For negatively toned propaganda the results cannot be combined. For both scientific and religious sponsorship, a moderately negative message was effective in producing a negative attitude. However, with the very strong negative message there was a boomerang effect with both religious and scientific sponsorships. In each instance the result was to change attitude *toward* rather than against a world police force, significantly more so with the scientific sponsorship ($t = 4.20$, $df = 60$).

D. Discussion

The substantive results of the study are not of great moment. It is well known that attitudes can be changed by propaganda. It is known also that extremely negative propaganda may have a reverse effect.

Methodologically, however, the results bear attention. The double-classification design permitted simultaneous comparison of two factors that might mediate the effect of propaganda. Such simultaneous comparison permitted an analysis that perhaps was more searching than usual.

If the original data (Table 2) had been collected separately—i.e., if

separate studies of the two sponsorships had been run by separate investigators —their conclusions as to effect of strength of message might have been different from those of the present study. The differences arise from the refinement in subtracting the effects of the interaction. The scientific sponsorship investigator might have concluded that both a "moderately-against" and a "moderately-for" statement would produce about equal changes in the *negative* direction; further, that only a small boomerang effect occurred with a strong negative presentation. In contrast, the religious sponsorship investigator might have noticed a negative effect *only* for the moderate negative message plus a very strong boomerang effect for the extreme negative message. With respect to neutral messages, our two hypothetical investigators might have interpreted the effects in a manner opposite to the interpretation we reached using the double-classification design.

It is apparent that it is no simple matter to conduct research on the effects of propaganda. The interaction term is a powerful tool in assessing the extent to which the data may be thought of as influenced by experimental error. The double-classification design approaches the world more realistically than does the single-variable study. The greater power of the technique seems to justify the corresponding necessity for strict experimental control in data collection.

E. Summary

The effects of two kinds of sponsorship (religious versus scientific) and five degrees of intensity of message ("strongly against" to "strongly for") were measured before and after propaganda administration. The topic was a world police force. With 331 *Ss* results indicate the power of the factorial design. A significant interaction among the variables was attributed to extrinsic factors occurring during the administration of the materials. Both sponsorship and intensity main effects were found to be different at the one per cent level of significance. Although the intensity variation produced differential shifts, these were not related perfectly to the expected effect of the messages.

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THE EFFECT OF ROLE TAKING ON THE JUDGMENT OF ATTITUDES*

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A. INTRODUCTION

In developing the method of equal-appearing intervals for scaling attitude items, Thurstone [see Thurstone and Chave (20)] assumed that the obtained scale values are independent of the opinions of the judges who sort the items. Early support for the validity of this assumption was claimed on the basis of high correlations found between scale values computed from sortings of groups of subjects whose attitudes toward the issue under concern differed (2, 7, 8, 10, 15). The most widely known of these studies is that of Hinckley (10), who compared the sortings of statements of attitude toward the social position of the Negro made by white and Negro college students.

But because the results of these investigations seemed contrary to the usual results of experiments dealing with judgment (3, 13, 14, 16, 23), Hovland and Sherif (11) repeated Hinckley's experiment using a slightly modified design. Their procedure differed from that of Hinckley primarily at the point of not eliminating "careless" judges who had sorted 30 or more items into one category.

Because they found that extreme judges tended to place a large number of items at the end of the scale opposite to their own positions and that midscale items were displaced away from the "own position" of the judges, Hovland and Sherif concluded that "the position of the judge on the issue does influence in a significant way his categorization of the items" (11, p. 830). While Hovland and Sherif did not attempt formally to explain their data in terms of theory, one may infer they favored using a perceptual defense mechanism (11, p. 824) as providing an explanation of the observed data.

Upshaw (22) has recently tested differentially the efficacy of four theoretical

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models—perceptual vigilance, adaptation level, assimilation-contrast, and variable series—for explaining the distribution of judgments in the equal-appearing interval procedure. He had white college students sort the Hinckley items. By choice of subjects and items sorted, the experimental design provided a manipulation of the judges' "own position" and range of items judged. He concluded (*a*) that the perceptual vigilance and assimilation-contrast models account for a main effect due to judges' attitudes, (*b*) that adaptation level accounts for a main effect due to item manipulation, and (*c*) that only the variable-series model accounts for both main effects and a significant interaction between them.

In all the preceding experiments, the frame of reference in terms of which the items are to be judged (so far as it relates to the judges' opinion or point of view) is uncontrolled in the directions given by the investigator. It is manipulated indirectly by selecting groups of judges with "own" attitudes that are known rather than manipulated directly by specifying the frame of reference to the judges.

The present study considers the effects of manipulating the judges' frame of reference directly, by means of the instructions for sorting items given to the subjects. A role-taking technique is used to introduce the desired frame of reference in the experimental situation; thus the design of the study provides a comparison of scale values of items derived from judgments obtained under "own position" and role-taking instructions, for a matched set of items selected from Hinckley's list.

According to Coutu, "the term (role taking) refers to the symbolic process by which a person momentarily pretends to himself that he is another person, imaginatively 'puts himself in the other's place,' in order that he may get an insight into the other person's probable behavior in a given situation" (5, p. 180). According to this definition, the perceptual response and hence the judged position of attitude items will change as a function of role taking. Assuming effectiveness of the role-taking technique as a procedure for changing perceptual responses, groups of judges (though different in their own attitude) might be expected to distribute items similarly if judged under the same role-taking directions. Coutu (5), however, warns that these expectations may not be fully realized because of limitations of the technique. In other words, the perceptual responses under the conditions for taking a certain role may be complex rather than simply identical to the perceptual responses of the *alter* whose role is being taken.

B. Hypotheses

The following seven hypotheses are to be considered.[2]

1. *Hypothesis I*

There is a difference in scale values for the items as judged by the anti-Negro white group and those judged by the pro-Negro Negro group.

2. *Hypothesis IIa*

When the attitude positions of both groups are out of range of the limits of the stimulus series, all differences (according to all models) will be in the direction of items judged more favorably by the white group than by the Negro group.

3. *Hypothesis IIb*

When the attitude positions of both groups are within the limits of the stimulus series, two alternative hypotheses must be stated. Either the differences will be in the direction of items judged more favorably by the white group than by the Negro group (perceptual defense, assimilation-contrast, and adaptation level); or there will be no difference (variable series).

4. *Hypothesis III*

When comparing scale values for white and Negro judges, either the magnitude of differences for items at the midrange of the scale are greater than those of the items at the extreme pro- or antirange (perceptual defense and assimilation-contrast effect); or the magnitude of differences of all items will be the same (variable series and adaptation-level model).

5. *Hypothesis IV*

There is a difference in scale values for the items as judged according to the "own" attitudes and for those judged under the role-taking condition by the same subjects.

6. *Hypothesis Va*

When both the "own" and role position are outside the limits of the stimulus series, the differences for the white group (according to all models) will be in the direction of items judged more favorably under the role-taking condition than according to their own attitudes.

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[2] A preliminary draft of Upshaw's paper (21) was helpful in formulating these hypotheses.

7. *Hypothesis Vb*

When both the "own" and role position are inside the limits of the stimulus series, the differences for the white group will be in the direction of items judged more favorably under the role-taking condition than in accord with their own attitudes (perceptual defense, assimilation-contrast effect, and adaptation level); or there will be no difference (variable series).

8. *Hypothesis VIa*

When both the "own" and role position are outside the limits of the stimulus series, the differences for the Negro group (according to all models) will be in the direction of items judged more favorably according to their own attitudes than under the role-taking condition.

9. *Hypothesis VIb*

When both the "own" and role position are inside the limits of the stimulus series, the differences for the Negro group will be in the direction of items judged more favorably according to their own attitudes than under the role-taking condition (perceptual defense, assimilation-contrast, and adaptation level); or there will be no difference (variable series).

10. *Hypothesis VII*

Regardless of whether both "own" and role position are assumed inside or outside the limits of the stimulus series, the magnitude of differences between "own" attitude and role-taking position of those items at the midrange of the scale are greater than those of the items at the extreme pro- or antirange (perceptual defense and assimilation-contrast effect); or the magnitudes of differences of all items will be the same (variable series and adaptation level).

C. Assumptions

The rejection of the null statement of Hypothesis I constitutes an essential condition for the study; otherwise changes of scale value as a function of shifting frames of reference could not be expected. Hypothesis IV relates to the question of whether scale values can be changed as a function of the role-taking directions. The remaining hypotheses were basically deduced from the four judgment models described by Upshaw (22); they were considered in an effort to determine which model best explains the observed differences in scale values.

In considering the assimilation-contrast model, it was assumed that the anti-

white group would push the pro-Negro items to the pro end of the scale to a greater extent than the pro-Negro group would "pull" these same items in the same direction. Similarly, it was assumed that the pro-Negro group would push the anti-Negro items to the anti end of the scale to a greater extent than the antiwhite group would "pull" these same items in the same direction. In terms of the methodologies used, these assumptions, if valid, will result in positive differences.

D. Method and Design

The design of the experiment is most easily described by reference to Table 1. Using the Seashore-Hevner modification of the method of equal-

TABLE 1
NUMBER OF SUBJECTS AND EXPERIMENTAL PROCEDURE FOR EACH GROUP

Subgroup	*N*	Order: Item Set A	Order: Item Set B
		White Subjects	
1	24	Own position a = (1-Wo-A)	Role position e = (1-Wn-B)
2	26	Role position b = (2-Wn-A)	Own position f = (2-Wo-B)
		Negro Subjects	
3	40	Own position c = (3-No-A)	Role position g = (3-Nw-B)
4	27	Role position d = (4-Nw-A)	Own position h = (4-No-B)

appearing intervals (18), one subgroup of whites sorted Item Set A into 11 intervals, with their "own" position as a basis for judgment. Then they sorted Item Set B, following directions that required them to "role take" the position of the Negro as a basis for judgment. The second subgroup sorted Item Set A under the role-taking instructions first and Item Set B under the "own" position second. Following a similar scheme, two Negro subgroups sorted the same two sets of items using their own position and a role-taking position of the whites.

Data were collected by use of a five-part paper-and-pencil type of instrument. Part I contained Item Set A. Part II contained Item Set B. Part III contained a 14-item, experimental, objective, and disguised test of attitude toward the Negro.[3] Part IV contained Kahn's Likert-type, 12-item scale for measuring attitude toward the Negro, Form I (12). Part V was an information sheet that asked subjects to indicate (on a five-point scale) how difficult

[3] Data from this part are not considered in this report.

it was to assume the specified roles and how well they felt they were able to assume the role. Also they indicated what class of person they assumed themselves to be (upper class, average, or lower class; college student; other).

The instructions in Parts I and II emphasized the following points: (*a*) The questionnaire is for the purpose of constructing an attitude scale. (*b*) The frame of reference in terms of which the items are to be judged is specified. (*c*) The items are to be judged within this frame of reference. (*d*) The specified procedures for making and recording judgments are to be followed carefully. (*e*) The questionnaire is anonymous.

In assigning numbers to the 11 categories, the authors followed Hovland and Sherif's suggestion to use Category 1 as the most favorable attitude position.

In each item set, there were 40 statements of attitude toward the social position of the Negro and these were taken from the Hinckley list (10). The items in the two sets were matched on a pair-by-pair basis (4). Matching was accomplished primarily in terms of the control-scale mean and ambiguity (*SD*) values reported by Upshaw (22, p. 89). For the two sets, the average difference in scale value is .00025 and the average difference in ambiguity value is .577. An effort to match the items in terms of content was not regarded as satisfactory.

During the spring and summer of 1961, two forms of the instrument (one with own-position directions in Part I and the other with the role-taking directions in Part I) were randomly distributed to students enrolled in several psychology and sociology classes at Emory University, Morehouse College, and Clark College. Students were asked to complete the instrument outside class and to return it to the instructor. No student was compelled or encouraged by any reward to complete the questionnaire.

Usable replies were received from 126 white and 91 Negro students. These represented about 65 per cent of the white and 85 per cent of the Negro students to whom questionnaires were distributed. The 50 white students whose scores on Kahn's attitude scale were below 40 were selected as the anti-Negro white subjects, and the 67 Negroes whose scores were above 50 were selected as the pro-Negro Negro subjects. The possible range of scores on this scale is from 12 to 60.

E. Data Analysis

For the several groups compared, differences between scale values at the item level were computed by the use of Student's *t*. Because of their increased efficiency and reliability, means and standard deviations were used instead of

medians and ambiguity values usually reported for attitude items (1; 6, p. 69ff; 9, pp. 194, 232; 24, p. 217).

For all hypotheses (except Hypotheses III and VII) significance of results over all items, and hence a test of the null statement of the hypotheses, was made by reference to the table prepared by Sakoda, *et al.* (17). That table gives the probability of obtaining at least n statistics significant at the .05 level of confidence from N calculated statistics.

For Hypotheses III and VII the range of scale values, based on our reversal of Upshaw's data, was divided into three parts (one to 4.32, 4.33 to 7.65, and 7.66 to 11) to represent the pro-, midscale, and antiranges respectively. Midrange items were compared with pro- and anti-items separately by the Mann-Whitney U test (19).

For all hypotheses (except Hypotheses I and IV) a one-tailed test of significance was employed. For the two excepted hypotheses a two-tailed test of significance was used. In all tests, the Type I Error was set at 5 per cent.

The first three hypotheses were evaluated by comparing scale values for Negroes (Cell "c" in Table 1) with those for whites (Cell "a"), with each group judging Item Set A in terms of their "own positions." Since item set, sequence, and role condition are held constant, the only independent variable is "own" attitude of subjects. Since values for whites are subtracted from those of Negroes, a positive difference indicates that whites judged the item to be more favorable to the Negro than did Negroes. The formula for uncorrelated groups was used for computing t. The direction of differences and results of the tests of significance for the several items for these comparisons are shown in Column "c" of Table 2.

In terms of differences in scale values for the "own position" and role-taking sortings, Hypotheses IV through VII were evaluated separately for Negroes and whites. This procedure permits a comparison between "own" position and role position, with sorting directions and item effects counterbalanced. For the whites, differences were obtained by subtracting the "own" role from the role-taking (Negro) values. These were obtained by subtracting the scale values for groups in Cells "a" and "f" in Table 1 from those in Cells "b" and "e" respectively.

For the Negroes, the differences were obtained by subtracting the role-taking (white) values from the "own" role values. These were obtained by subtracting scale values for groups in Cells "g" and "d" of Table 1 from those in Cells "c" and "h" respectively. The formula for correlated groups was used for computing t. The direction of differences and results of the tests of significance

TABLE 2
DIRECTION AND SIGNIFICANCE OF DIFFERENCE* IN SCALE VALUES BY ITEMS

Item number (a)	Reversed Upshaw scale value (b)	Negro minus white		White subjects Role-taking position minus "own" position		Negro subjects Own position minus role-taking position	
		Sign (c)	Significance (d)	Sign (e)	Significance (f)	Sign (g)	Significance (h)
8	1.48	—	2	—		—	2
36	1.48	—	2	—		—	
1	1.86	—		—		—	
10	2.16		1	—			
24	2.32	—	2	—		—	2
20	2.67	—		—	2		
33	2.79	—				—	
29	3.24			—			
4	3.66	—		—			
15	3.68	—	2	—		—	2
39	4.00	—	2	—		—	
31	4.41	—				—	
40	4.61	—	2			—	
6	4.75	—	2	—		—	2
17	4.93					—	
12	5.07		3				
14	5.67		3			—	2
23	6.01						3
27	6.16		3				3
3	6.23	—	2			—	2
21	6.57		3	—			
13	6.62		3				
9	6.87		3		1		
19	7.44		3				
30	7.57		3				
5	7.98		3		3		1
25	8.19		3				1
34	8.36		3				
35	8.85		3				3
26	9.12		3		1		1
16	9.17		3		1		
38	9.29		3				3
32	9.44		3				
22	9.68		3		1		1
18	9.84		3				3
37	9.93		3		1		1
11	10.34		3				
28	10.52		3				3
7	10.77		1		3		3
2	10.83		3				1

* 1 = one-tailed test, five per cent level; 2 = two-tailed test, five per cent level; 3 = one- and two-tailed tests, five per cent level.

for the several items for these comparisons for whites and Negroes respectively are shown in columns "d" and "e" of Table 2.

F. Results

As 30 of the 40 items in Column "c" of Table 2 show a significant difference (two-tailed test), the null statement of Hypothesis I is rejected. As there are 24 items with positive significant differences the null statement of Hypothesis IIa is rejected. Since the first alternative of Hypothesis IIb is the same as Hypothesis IIa (so far as the direction of difference is concerned) we reject the null statement of the first alternative but not of the second.[4]

With respect to Hypothesis III, there are two, 10, and 15 items (out of 11, 14, and 15 items) with a positive difference for anti-, midrange and pro-items respectively. The *U* values for anti-items compared with those for midrange items, and those for midrange items compared with those for pro-items are two and 61 respectively. Since neither is significant we do not reject a null statement of the first alternative of the hypothesis. The results imply that the magnitudes of the differences are the same in the three ranges of the scale.

Since, on the basis of a two-tailed test, there are three items with a significant difference for the white subjects and 13 items with a significant difference for the Negro subjects, the null statement of Hypothesis IV (according to Sakoda's table) is not rejected for whites; it is rejected for Negroes.

Hypotheses V and VI respectively were tested in terms of the data used with Hypothesis IV, except that one-tailed tests of significance were employed. Because there are seven items with a significant positive difference for the whites, the null statement of Hypothesis Va is rejected. Because the first alternative of Hypothesis Vb is the same as Hypothesis Va, we reject the null statement of the first but not of the second part of this hypothesis.

As there are 13 items with a significant positive difference for the Negroes, the null statement of Hypothesis VIa is rejected. As the first alternative of Hypothesis VIb is the same as Hypothesis VIa, the null statement of the first but not the second part of this hypothesis is rejected.

For testing Hypothesis VII there are one, 12, and 15, pro-, mid-, and anti-items with positive differences for whites and four, eight, and 15 such items for Negroes. When pro-end items are compared with midrange items, the Mann-Whitney Test gives a *U* of five for whites and 12 for Negroes. When midrange items are compared with anti-items, it yields a *U* of 63 for whites

[4] Upshaw (21) has discussed the statistical difficulties involved in evaluating these alternative-type hypotheses. He notes that the criteria for assessing $A > B$ are more stringent than those for noting $A = B$.

and 52 for Negroes. Since none of these values is significant, we do not reject the first alternative of the hypothesis and we tend to accept the second.

G. Discussion

Before considering the major facets of this study two methodological matters merit attention.

First, because of the nature of the data (21, p. 89) there seem to be logical grounds for employing nonparametric analytic procedures, such as the sign test. But reasons for *not* following this procedure have been provided. However, to see what difference would result from following a nonparametric procedure, the sign test was applied. With one exception, the results are identical with those reported for all groups compared and for all hypotheses. Whereas Hypothesis IV is not rejected on the basis of data for the white group as reported above, it is rejected when the data are analyzed by the sign test. With respect to the reliability of differences (particularly in reference to the individual item as compared with the overall level of interpretation) this difference seems relevant to the interpretation of the data. With particular reference to Hypothesis IV, one may infer that larger samples of white subjects would probably have yielded enough items with significant differences to reject the hypothesis.

Second, reference to Table 1 makes it apparent that an estimate of sensitivity gained by using the counterbalanced design for evaluating "own" *vs.* role-taking differences can be secured by comparing the results already reported with results secured by considering the differences in sortings of the independent Groups "b" and "a" for whites and the independent Groups "c" and "d" for Negroes. While not reported here in detail, the comparisons indicate that both procedures yield essentially similar results for Negroes. For whites the counterbalanced procedure yields more significant *t*s and more positive signs than does the uncorrelated-group design, but it is only for Hypotheses Va and Vb that the increment in number of significant *t*s (by use of the counterbalanced procedure) is large enough to affect the outcome of the test of the hypotheses.

On an overall basis, including one-tailed as well as two-tailed tests of significance, the data indicate that (for both Negro and white subjects) judgments of attitude items reflecting the social position of the Negro will change under role-taking instructions. Within the framework of this experiment, however, role taking has less effect on the judgments of white subjects than on those of Negro subjects. This difference may be accounted for in terms of several factors.

If, as a function of the number of subjects employed, the data for the white

subjects were as reliable as those for the Negroes, it is possible there would have been more items with significant differences for the whites.

It seems likely that the attitude position of the white group is not extreme enough to produce item displacements as large as those found for the Negroes. Unfortunately the exact position of the judges' "own" position for either whites or Negroes cannot be located on the scale. But from what is known of our subjects—and of the ways in which they would compare with those of Hovland and Sherif (11) and of Upshaw (21)—we would infer that our Negro subjects are probably out of range and that the white subjects are in range. The difficulty of obtaining subjects with extreme anti-Negro attitudes is illustrated by our inability to secure cooperation from more than five colleges in Georgia, Mississippi, and Louisiana where students could be expected to have strong anti-Negro attitudes.

A third explanation lies in the seemingly greater difficulty whites have in taking the roles of their *alters*. Seventy-eight per cent of all white subjects indicated that it was very difficult or (at least) difficult to take the role of the Negro. Only 17 per cent felt it was very easy. In contrast, 44 per cent of the Negroes indicated that it was very difficult or difficult to take the role of the white and 40 per cent felt it was easy or very easy to assume such role. Similarly, 24 per cent of the whites felt that they were able to assume the role very well or well, while 56 per cent felt they assumed it poorly or very poorly. Sixty-six per cent of the Negro subjects felt they were able to assume the role of whites very well or well, while only 10 per cent felt they assumed it poorly or very poorly.

Another relevant factor is the differences between the Negro and the white subjects as a function of the type of person each assumed himself to be in the role-taking situation. In this study, 12 per cent of the white subjects reported that they took the role of an upper-class Negro, 40 per cent took the role of an average Negro, and 12 per cent took the role of a lower-class Negro. For the Negro subjects, the per cents for the three corresponding categories of whites were 20 per cent, 27 per cent, and 5 per cent respectively. About one-third of each group projected themselves into the role of the college student. It seems possible that the specific type or class a person assumes himself to be could make a considerable difference in sorting the items. The ambiguously stated directions were used in this study primarily because we felt unable to predict what the outcome would be if the directions were specified more clearly and because we felt that the specific kind of person a subject is willing to assume himself to be may be a manifestation of an important aspect of his own

attitude. Further work seems necessary to clarify the relation of this variable on sorting attitude items.

In considering the results obtained in testing Hypotheses II, III, V, VI, and VII, it is clear that the evidence from any one of these hypotheses taken singly provides inadequate evidence for deciding which judgment model best explains the experimental data. From the results of all hypotheses considered simultaneously, one may infer that the adaptation-level model seems to account for more data than does any other model.

It is important to remember, however, that these hypotheses were stated under the assumption that the "push" of the contrast effect would be greater than the "pull" of the assimilation effect, with the result that all differences would be positive. That this assumption is erroneous is strongly suggested by the observation that the negative differences in all comparisons are concentrated at the pro-Negro end of the scale. These negative differences imply a bidirectional displacement. Perhaps parenthetically, it should be noted that these negative differences seriously weaken the tests between pro- and midrange items in Hypotheses III and VII.

In terms of the models as stated by Upshaw, the negative differences can be explained only by the assimilation-contrast model, which is the only model that predicts bidirectional item displacements. In the present study, all hypotheses are set under the condition that the attitude positions of the groups compared are both *in* range or are both *out* of range. Other possibilities also exist. If it is assumed that one of the groups compared has an extreme attitude (either in range or out of range) and that the other group has a "neutral" attitude, the differences in scale values for the two groups (as predicted by the assimilation-contrast model) will be positive for items at one end of the scale and negative for items at the other end. In the comparison of Negro and white subjects, when groups take the "own" role in judging items in Part I, it seems plausible to assume that the attitude of the white group is not extreme and that the attitude of the Negro group is extremely pro-Negro. As a consequence, only the Negro group displaces the items in a way that "pushes" the anti-items away from their own position and "pulls" the proitems toward their own position. The differences obtained by subtracting the scale value for the white group from that for the Negro group will then be positive for the anti-items and negative for the proitems. Similarly for whites—the same directions of differences may be predicted for the "own" position and the Negro role, when the attitude change is from a "neutral" attitude to an extremely pro-Negro attitude. For the Negro group, when shifting from "own" to the white role, the attitude change is from extremely pro-Negro to nonextreme or "neutral."

These assumptions are not unreasonable because, as stated before, there is some evidence that the attitudes of the white subjects are not extremely anti-Negro.

Before eliminating the adaptation-level model, however, it should be noted that informal conversations with Professor Harry Helson indicate that he feels his adaptation-level model can account for the obtained negative differences. By inference, these conversations imply that Helson does not consider that Upshaw's description of the model covers his (Helson's) position comprehensively.

These difficulties in interpretation suggest that additional studies are needed before the efficacy of the several models for explaining judgment becomes entirely clear.

H. Summary

The purpose of this study was to determine whether role taking will change the judgments of attitude items and whether the changes are consistent with what can be predicted from four theoretical models.

Anti-Negro white subjects and pro-Negro Negro subjects judged two sets of attitude items concerning the social position of the Negro. They did this in terms of their own attitude and under a role-taking position of their *alter*.

While there is evidence to suggest that role-taking instructions produce a change in scale values for both Negro and white subjects, the differences are larger for the Negro than for the white subjects. Reasons for this difference are suggested in terms of the reliability of differences as a function of the number of subjects, difference in location of "own" position of the two groups on the scale, difference in ability to assume the position of the *alter*, and difference in class of person one assumes himself to be in the role-taking situation.

The hypotheses considered in determining what theoretical model best accounts for the differences do not yield a clear answer. The data seem to lend strongest support for the adaptation-level and assimilation-contrast models. Additional work seems necessary before a clarification of this matter can be obtained.

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ECONOMIC DEVELOPMENT AND IDENTITY CONFLICT IN PUERTO RICO*

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A. PURPOSE

This inquiry is a study of identity conflicts among Puerto Rican youth. An identity conflict may be defined operationally as the relation between culturally defined models of what men and women believe they should be and what they believe they are. The lower the degree of conformity between actual and ideal models, the greater is the identity conflict.

Puerto Rico is an excellent laboratory for such a study because of the remarkable changes that have occurred in the island during the past two decades. While the island's per capita income was only $121 in 1940 (less than one-fourth that of Mississippi, the poorest state in the United States) twenty years later it had increased to more than $600, largely through the success of *Operation Bootstrap,* begun in 1947 (13). This economic-development program entailed rapid industrialization of the economy by utilizing mainland capital. United States' industry was attracted by the Commonwealth Government's program of tax exemption, an abundance of cheap labor, and political stability [factors ensuring high profits and secure investments (2, 5, 15)].

From the point of view of the economist, the success of the program has been spectacular. Since 1947, more than 700 new plants have begun operations in Puerto Rico. Most of them rely on mainland capital and know-how. These new factories have created thousands of new jobs, although it should be mentioned that direct employment created by them is largely for women. The streets and superhighways, especially in the San Juan metropolitan area, are jammed with cars; and suburban housewives buy their groceries in modern supermarkets, which operate almost exclusively with mainland capital and methods. The new conspicuous consumption is the shibboleth of island politicians. Economic indicators continue what appears to be an unending ascent: gross national product, per capita income, bank deposits, wages and salaries—all are rising. While Puerto Rico's per capita income continues to be lower than that of any state in the United States, it is considered to be higher in

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terms of real buying power than that of any other area in the Western hemisphere south of the United States.

The effects of Puerto Rico's rapid economic development have been all-pervasive (2, 4, 5, 6, 16, 19). Neither individuals nor social institutions have escaped its far-reaching manifestations. Family, church, school, government—none has evaded its influence entirely unscathed. The old problems (mostly economic) have been solved for some, but the rapid economic development has brought with it a host of new problems affecting everyone. The island's historic tradition is rural, agricultural, Catholic, and Spanish; whereas recent changes have introduced a fundamentally urban, industrial, Protestant, American *Weltanschauung*.

Puerto Rico was a rather insignificant appendage of the Spanish Empire for 400 years; hence its basically Hispanic orientation. For example, typical family characteristics are the extended family; the dominance of the male as the authority figure; the subordination of the female; the separation and the segregation of the sexes; the cloistering of unmarried women; the emphasis on the male's *machismo*—his maleness, courage, and sexual prowess; familism—the very strong emotional ties that bind each member of the extended family to each other member; the use of socialization techniques that produce feelings of shame in the wrongdoer; strong *respeto* (respect) for the father and all authority figures; the major role of women as the *ama de casa* (the good housewife); and the like (2, 5, 6, 8, 9, 10, 12). These family values, practices, and socialization techniques were consonant with the other prominent institutions of the society: i.e., a strong Catholic Church; a strong paternalistic government; and strong authoritarian teachers, police, and local leaders.

Against this Hispanic backdrop, *Operation Bootstrap* juxtaposed not only United States' business enterprises, but also the value system current in the United States. The island's enforced close economic, social, and political ties to the United States have opened many channels through which North American value patterns have flowed to the island, spearheaded by some 50,000 mainlanders who now live in the island (22). Mainlanders have brought, with other miscellany among their baggage, Protestantism, Hollywood motion pictures, mainland customs and fetishes (including dieting, health foods, racial prejudice, commercialization of sex, high-powered techniques of selling, rock-and-roll music, the twist, early bottle feeding of infants, etc.), the commercialization of interpersonal relations, an emphasis on money as a value *per se*, and the very popular United States' television programs which present mainland models of males and females.

Hispanic and United States' values have met head on in Puerto Rico. Thus

far, and psychologically, the collision has been most serious in the area of family values and family patterns among urban families. This clash should not cause surprise since, in many ways, Hispanic and United States' family values are diametrically opposed. For example, the nuclear family rather than the extended family predominates in the United States. Individuality rather than family interdependence is emphasized. The ideal of shared rather than male authority prevails. Family-socialization techniques in the United States produce feelings of guilt rather than feelings of shame in the wrongdoer. The place of women is no longer in the home. And so forth. In addition, some of the major cultural value orientations that typify Puerto Ricans differ significantly from those of North Americans. For instance, traditionally Puerto Ricans are much more fatalistic in their attitudes toward life than are people in the United States. Puerto Ricans stand in greater awe of nature. Puerto Ricans do not believe, as do their United States' counterparts, that time is money. Nor do Puerto Ricans live in the future and make such specific plans for future activities as is common among members of the upper and middle class in the United States (9, 10, 20).

The middle- and new upper-class families of Puerto Rico have become more "Americanized" than have lower-class families (3, 9, 11, 12). Frequently, both parents work and the children are left in the care of a servant or the grandmother. Parents of the middle class not only have less time to spend with their children but the parents themselves have become confused by the society's shifting values.

Confusion in the sexual roles of boys and girls has been increasing; however, the double standard of sex morality still exists among most families in Puerto Rico (9, 12, 17). Because women are now able to secure employment outside the home, men are losing the status of the sole breadwinners. Women seem to be demanding more equalitarian status with men, while men seem to be resisting vigorously the loss of their traditional prerogatives. With sex roles in the state of flux, it is increasingly difficult if not impossible for families in the urban areas of the island to indoctrinate their sons and daughters in any consistent manner. Instruction on sex roles has become blurred and confused. No longer can parents educate their daughters just to be good housewives. The real problem lies in the fact that parents have no experience in educating their daughters to be anything else.

Parental discipline has tended to become less strict and authoritarian, especially among middle-income families of the urban areas. However, parents seem more anxious in *all* of their relationships (including those with their children) since higher emotional stresses have been imposed by many aspects

of urban life, particularly by the unbalanced character and rapidity of social changes. Psychologically, parents no longer provide dependable consistent models for children and youth. Increased anxiety among parents has led to increased inconsistency. For example, Lopez' study (11) of middle-income families in Caguas, a town rapidly being assimilated by the San Juan metropolitan area, revealed much confusion among parents regarding who should discipline the children.

As parental models become more inconsistent and less dependable, children and youth have filled the void with their own models. *Peer culture* is developing rapidly among the children of middle-income families of the metropolitan areas. This development has been supported by local merchants who are eager to sell to the adolescent market. The depiction of North American teen-agers in television and movies has further stimulated the development of peer culture in the island. But such media as movies, television, and music are not the causes of the development of peer culture. They merely cater to and bolster it. The weakening of the values of the parents, the destruction of the traditional Hispanic way of life, and the rapid urbanization are its bases. Children left to their own resources fill the void with their own behavior models and ideals.

This study, inspired by the foregoing changes, has two objectives. The first is to attempt to explore identity conflicts of Puerto Rican university students. The second is to attempt to determine measurable shifts in culturally oriented personality models for males and females.

Three hypotheses guided this inquiry: (*a*) that any shift would be toward the United States' model; (*b*) that women would tend to be changing more rapidly than men; and (*c*) that changes in preferred models of personality would be associated with the island's rapid industrialization and consequent Americanization.

B. Procedure

The subjects studied were 552 students drawn from two large freshmen-orientation classes at the Rio Piedras campus of the University of Puerto Rico. These students represented about one-fifth of the freshmen-class enrollment for the year 1960-1961. Of the 599 students tested initially, the results for 47 students were discarded because they misinterpreted the directions given or their papers were incomplete.

The remaining 552 students included 335 unmarried males and 217 females. The range of students' ages was from 15 to 21 years, with a median age of 18 years. The majority (77 per cent) of the students' parents were homeowners or were in the process of buying their homes. Sixty-nine per cent of the stu-

dents were from the island's urban centers (especially the San Juan metropolitan area) while 31 per cent were from rural areas.

Four hundred and seventy-three students identified themselves as Roman Catholic. Seventy-nine reported that they belonged to Protestant groups. This ratio of Catholics to Protestants closely approximates that of the island's total population (9, 10).

It should be emphasized (*a*) that all of these students were born in the period 1939 to 1945, the threshold of the era of the island's rapid economic changes; (*b*) that the majority were from the island's urban areas, the foci of greatest social change; and (*c*) that the majority of the students' parents have probably ascended into the island's expanding middle class in the past two decades. It appears safe to assume, therefore, that these students have had an intimate exposure to the major interpersonal and family problems associated with very rapid socioeconomic change.

It should also be pointed out that these students are not representative of the island's youth. Presumably they differ significantly from other youth of their age in at least the following respects: higher family income, more urbanized, higher level of educational achievement, and (probably) higher levels of economic, social, and vocational aspiration.

Each of the students selected to participate in this study was asked to complete two schedules. The first schedule included biographical and family data on the student's age, birthplace, place of residence, vocational aspirations, and religious affiliation. The second schedule was a descriptive checklist (presented in Spanish) that each student was asked to check in order to describe his actual and ideal conceptions of himself and the actual and ideal characteristics of the Puerto Rican man and woman.

The formulation of the checklist, developed in 1958, began with the accumulation of 300 words combinations of which could be used to describe almost any individual from Western society. Five psychiatrists were asked to classify each word as favorable, neutral, or unfavorable in terms of the mental-health implications of each word when used for self-description by a Puerto Rican. Puerto Rican psychiatrists were asked to do this because different cultures may attribute different values to similar words. For instance, the words passive, vain, selfish, sensual, and hostile would tend to have unfavorable connotations in England and the United States, while in Puerto Rico these terms are considered neutral.

If four or more of the psychiatrists concurred that a word was favorable, unfavorable or neutral, the word was retained on the list. If less than four

agreed, the word was discarded. The final checklist containing 112 words is shown in Table 1.

TABLE 1
THE DESCRIPTIVE CHECKLIST

Category	Original Spanish word	English equivalent	Category	Original Spanish word	English equivalent
F	Noble	noble	F	Ajustado	adjusted
N	Hostil	hostile	F	Honesto	honest
F	Fuerte	strong	N	Superior	superior
U	Cruel	cruel	U	Estupido	stupid
F	Adorable	lovable	N	Virtuoso	virtuous
N	Vano	vain	F	Sencillo	unpretentious
F	Justo	just	U	Tonto	foolish
F	Lider	leader	N	Metodico	methodical
U	Rudo	coarse	U	Borracho	drunken
U	Debil	weak	F	Ordenado	orderly
N	Sensual	sensual	U	Miedoso	fearful
F	Alerta	alert	U	Odioso	hateful
F	Activo	active	N	Racional	rational
F	Util	useful	N	Egoista	egotistical
N	Bonito	pretty	F	Sincero	sincere
N	Pasivo	passive	N	Triste	sad
U	Vulgar	vulgar	U	Injusto	unjust
F	Guapo	handsome	N	Atrevido	forward
N	Libre	free	U	Ansioso	anxious
U	Vago	lethargic	F	Contento	content
U	Martir	martyr	N	Bebedor	drinker
F	Sexual	sexual	F	Alegre	happy
U	Sumiso	submissive	U	Inferior	inferior
N	Callejero	runaround	F	Estricto	strict
F	Serio	serious	F	Carinoso	affectionate
N	Comico	funny	N	Hablador	talkative
U	Malo	bad	N	Aninado	childish
F	Heroico	heroic	N	Envidioso	envious
U	Celoso	jealous	U	Parasito	parasitic
N	Dominante	dominant	N	Encantador	enchanting
F	Honorable	honorable	N	Supersticioso	superstitious
N	Impulsivo	impulsive	N	Sugestionable	suggestionable
F	Protector	protector	U	Desobediente	disobedient
F	Tolerante	tolerant	F	Conservador	conservative
F	Agradable	agreeable	N	Autoritario	authoritarian
F	Respetable	respectable	N	Americanizado	Americanized
N	Silencioso	silent	F	Sentimental	sentimental
U	Desconfiado	distrustful	F	Independiente	independent
F	Civilizado	civilized	U	Desagradable	disagreeable
F	Efficiente	efficient	U	Descontento	unhappy
N	Precioso	attractive	F	Democratico	democratic
U	Vengativo	revengeful	F	Bondadoso	kind
N	Espiritual	spiritual	N	Amenazante	threatening
N	Sensitivo	sensitive	F	Industrioso	industrious
F	Religioso	religious	U	Irrazonable	irrational

TABLE 1 (*continued*)

Category	Original Spanish word	English equivalent	Category	Original Spanish word	English equivalent
F	Obediente	obedient	F	Inteligente	intelligent
N	Ambicioso	ambitious	F	Cientifico	scientific
N	Artistico	artistic	F	Comunicative	communicative
F	Razonable	reasonable	N	Dependiente	dependent
N	Orgulloso	haughty	U	Deshonesto	dishonest

* The symbols F, N, and U denote adjectives categorized as favorable, neutral, and unfavorable respectively, by four or more of the psychiatrists asked to judge the words.

The method of pretesting the reliability and validity of the descriptive checklist as well as the procedure for administration have been summarized in previous publications (12, 18).

C. Results

The results to be reported show the words most frequently chosen by male and female students. "Most frequent" was arbitrarily defined as the upper 10 per cent of the words selected by male and by female students.

1. *The Puerto Rican Woman*

Table 2 shows the words that the subjects of this inquiry chose most frequently to describe the actual and ideal Puerto Rican woman. The words employed most often to describe the actual Puerto Rican woman included jealous, religious, weak, sentimental, and lovable. These five words were used 1423 times in presenting a verbal picture of the Puerto Rican women. The adjectives conform very much to the traditional conception of the Hispanic female: namely, that she is emotional, very religious, sentimental, and feminine; but is weak and should be protected.

In describing the actual Puerto Rican woman, the female students selected more words having a favorable connotation than did the male students. The male students used twice as many neutral words (sensual, pretty, haughty, and talkative) as did the female students. The female students used twice as many favorable words (religious, affectionate, agreeable, honest, and sentimental) as did the male students. Both male and female students used frequently the same two unfavorable words (jealous and weak) to describe the actual Puerto Rican woman.

Agreement as to the characteristics of the actual Puerto Rican woman was consistently higher among female students than among male students.

The words used most frequently to describe the ideal Puerto Rican woman

TABLE 2

THE MOST FREQUENTLY CHOSEN WORDS USED TO DESCRIBE THE ACTUAL AND IDEAL PUERTO RICAN WOMAN BY 335 MALE AND 227 FEMALE STUDENTS

The actual woman				The ideal woman			
The word chosen	Chosen by males %	The word chosen	Chosen by females %	The word chosen	Chosen by males %	The word chosen	Chosen by females %
Jealous	50	Religious	62	Lovable	46	Obedient	60
Lovable	49	Weak	60	Sincere	44	Unpretentious	57
Sentimental	47	Jealous	60	Affectionate	42	Honest	56
Religious	45	Affectionate	60	Tolerant	42	Respectable	55
Weak	44	Agreeable	59	Respectable	42	Sincere	54
Sensual	42	Honest	58	Religious	42	Noble	53
Pretty	42	Sentimental	58	Noble	39	Kind	52
Haughty	42	Lovable	56	Honest	39	Useful	52
Talkative	41	Happy	56	Useful	39	Orderly	52
Agreeable	39	Talkative	55	Obedient	38	Agreeable	51
Affectionate	38	Kind	54	Orderly	37	Silent	49

were obedient, lovable, sincere, respectable, honest (which when describing a woman implies chaste), and unpretentious. These characteristics coincide almost perfectly with the Hispanic prototype of a good mother. *Obedience* was the word selected most frequently by the females to describe the ideal Puerto Rican female, thus indicating that these female students feel keenly that ideally they should play subservient roles.

The words used most commonly by the male students to describe the ideal Puerto Rican woman were lovable, sincere, affectionate, tolerant, respectable, and religious. These six words were chosen 865 times by the male students. *Obedience* ranked about tenth in frequency of selection. Thirty-eight per cent of the male students believed the ideal Puerto Rican woman should be obedient, whereas 60 per cent of the female students selected the adjective obedient to characterize the ideal Puerto Rican woman. The female students appear to overestimate the importance that the males attribute to obedience.

Lovable was the word most frequently selected by male students to describe the ideal Puerto Rican woman. This adjective was not among the upper 10 per cent of the words chosen by female students. To be lovable, in terms of Hispanic culture, implies being feminine, loving, warm, affectionate, and understanding; yet the female students apparently felt that obedience was more important.

Agreement on the characteristics of the ideal woman was much higher among females than among males. Comparing the difference between the words used to describe the actual and the ideal woman, it would appear that both male and female students believe that the Puerto Rican woman should be *less* jealous, sentimental, weak, and talkative; but *more* obedient, lovable, unpretentious, honest, sincere, and affectionate. Again it may be noted that these traits are an excellent partial summary of the qualities of a good Hispanic mother.

From the preceding analysis, it would appear that the ideal woman has not been altered notably by the island's recent change. Both male and female students tend to perceive the Puerto Rican woman in traditional Hispanic terms and to idealize these traits, especially obedience and lovableness.

2. *The Puerto Rican Man*

The words used most frequently to describe the actual and ideal Puerto Rican male are shown in Table 3. The words employed most often by the female students were dominating, jealous, strong and drinker—characteristics typical of the traditional Hispanic male. The female students' descriptions were primarily neutral or unfavorable and emphasized such adjectives as distrustful, authoritarian, egotistical, and impulsive. The words most frequently

TABLE 3

THE MOST FREQUENTLY CHOSEN WORDS USED TO DESCRIBE THE ACTUAL AND IDEAL PUERTO RICAN MAN BY 335 MALE AND 227 FEMALE STUDENTS

The actual man				The ideal man			
The word chosen	Chosen by males %	The word chosen	Chosen by females %	The word chosen	Chosen by males %	The word chosen	Chosen by females %
Jealous	41	Dominating	70	Orderly	46	Religious	56
Dominating	37	Jealous	63	Leader	44	Orderly	53
Democratic	36	Strong	54	Just	44	Progressive	52
Civilized	34	Forward	50	Active	44	Noble	51
Drinker	34	Drinker	48	Honest	44	Respectable	51
Runaround	33	Distrustful	48	Democratic	43	Sincere	50
Sexual	33	Authoritarian	47	Useful	42	Valiant	49
Forward	32	Runaround	46	Noble	42	Active	48
Talkative	32	Egotistic	46	Sincere	40	Useful	46
Active	31	Impulsive	43	Alert	39	Protector	46
Valiant	31	Haughty	40	Industrious	39	Affectionate	45

chosen by the male students concurred partially with those employed by the female students—jealous, dominating, democratic, civilized, and a drinker. The male students selected favorable words more frequently than did the female students.

Both sexes chose the following terms frequently: dominating, jealous, a drinker, and a runaround. From these choices it can be inferred that the male is apparently still the master in Puerto Rico.

It is interesting to note that 47 per cent of the female students described the Puerto Rican man as authoritarian, whereas 36 per cent of the male students described the Puerto Rican man as authoritarian. Similarly, less than 10 per cent of the female students selected the adjective democratic to describe the Puerto Rican man.

Greater agreement existed among female than among male students as to the major traits of the actual Puerto Rican man. Not only did the male students differ more among themselves as to the characteristics of the Puerto Rican man, but the male students used more words that appear contradictory (such as jealous and dominating versus democratic) than did female students.

The words used to describe the ideal Puerto Rican man differed significantly from those selected to describe the actual man. The female students most frequently chose the terms religious, orderly, and progressive to describe the ideal man; whereas the male students most often chose the words orderly, leader, active, and honest. As conceived by these students, a notable discrepancy exists between the Puerto Rican man as he is and the Puerto Rican man as he should be ideally.

Both male and female students frequently chose the following terms to describe the ideal Puerto Rican man: orderly, active, useful, noble, sincere, and respectable. However, the male students differed from the female students in their more frequent use of words such as leader, just, democratic, and industrious. These words appear to describe better the United States' ideal than the Hispanic. One possible interpretation of this difference is that male students believe that the Puerto Rican man should be less Hispanic in behavior and attitudes.

The female students' ideal Puerto Rican man was more similar to the Hispanic model than was that of the male students. For example, the following words were chosen more frequently by the female students than by the male students: religious, valiant, protector, and noble. Most of these are idealized characteristics of the Hispanic husband.

There was consistently more agreement among the female students than among the males as to the ideal trait of the Puerto Rican male. More confu-

sion and disagreement exist among male students than among females regarding the traits of an ideal Puerto Rican male. Nevertheless, the male students' concepts of the ideal male appear to have moved much farther away from the traditional Hispanic model than have the concepts of the female students.

3. *The Self*

The most frequently chosen words used to describe the actual and ideal self-concepts are shown in Table 4. The words that the female students chose most frequently to describe themselves were sincere, honest, unpretentious, religious, and obedient. These words approximate a definition of the traditional Hispanic woman.

The male students chose the following words most frequently: sincere, unpretentious, civilized, serious, honest, and democratic. Words selected by male students described a concept of man differing considerably from both the traditional Hispanic man and from their own descriptions of the actual Puerto Rican man. The male students in describing themselves selected the words just and tolerant much more frequently than did the female students in describing themselves. The female students, on the other hand, selected the adjectives sentimental, affectionate, and agreeable more frequently than did the males. Considerably more agreement existed among female students than among male students in the selection of words to describe the self.

The words chosen by both male and female students to describe the ideal self were extremely revealing. There was considerably more agreement among the male than among the female students as to the traits which constitute the ideal self. The female students appear to show greater confusion about the ideal female model and indicate that they are perhaps more dissatisfied with the traditional Hispanic concept of the female (including its limited prerogatives).

The words that the male students selected most frequently to describe their ideal selves were leader, active, strong, noble and just—typical traits of the ideal Hispanic man. It should also be noted that several words closely associated in Puerto Rico with the United States' male ideal were *not* chosen frequently by the male students. These included orderly, industrious, tolerant, progressive, scientific, independent, Americanized, rational, methodical, and the like.

The words that the female students chose most frequently to describe their self-ideals were very contradictory. For example, some of the words selected frequently were closely related to the ideal female in the United States—active, useful, efficient, leader, etc. However, words associated with the Hispanic

TABLE 4

THE MOST FREQUENTLY CHOSEN WORDS USED TO DESCRIBE THE ACTUAL AND IDEAL SELF BY 335 MALE AND 227 FEMALE STUDENTS

The actual self				The ideal self			
The word chosen	Chosen by males %	The word chosen	Chosen by females %	The word chosen	Chosen by males %	The word chosen	Chosen by females %
Sincere	63	Sincere	75	Leader	46	Noble	32
Unpretentious	61	Honest	72	Active	39	Lovable	31
Civilized	55	Unpretentious	71	Strong	38	Just	29
Serious	55	Religious	70	Useful	35	Active	28
Honest	54	Obedient	62	Noble	33	Useful	26
Democratic	52	Serious	59	Just	33	Leader	25
Religious	51	Sentimental	59	Intelligent	31	Efficient	24
Just	50	Happy	52	Heroic	30	Tolerant	24
Happy	50	Affectionate	52	Honorable	30	Honorable	24
Obedient	46	Civilized	50	Virtuous	30	Affectionate	23
Tolerant	44	Agreeable	46	Efficient	30	Happy	22

female ideal, such as lovable, affectionate, happy and tolerant, were also selected frequently. This suggests that in terms of ego ideals, the female students are abandoning the traditional Hispanic models more rapidly than are the male students.

D. Discussion

This study has several limitations. In the first place, it is almost impossible to determine cause and effect relationships when attempting to analyze massive social change. We can record some of the results, but it would be presumptuous to attempt to appraise them *in toto*. It is equally naive, however, to ignore the obvious, which in this case is the fact that many cultural and human changes have accompanied Puerto Rico's economic development. The specific cause and effect relationships remain matters for speculation.

Secondly, the validity of any checklist, including the one employed in this study, ultimately depends upon the subject's sincerity when expressing what he believes. It is possible that some students misinterpreted or did not understand the meaning of some of the terms in the descriptive checklist. If some subjects distorted their responses or selected terms that they did not understand, the results of this inquiry are similarly distorted.

Finally, the subjects of this inquiry came primarily from middle-class families and were university students. They differ significantly from their nonuniversity peers in several respects, as has been indicated. Whether or not a study of youth of the lower class would yield results similar to those reported here is a matter for future research. However, it is important to note that the subjects of this study may portend the future in the rapidly developing Puerto Rican society because they do represent the emerging urban middle class. The discussion that follows should be interpreted in the light of these limitations.

The female students' descriptions of the actual and ideal Puerto Rican woman conform to a great extent to the Hispanic model. In describing the ideal woman, they placed greatest emphasis on the concept of *obedience*. The female students' cultural model of the Puerto Rican woman has apparently been affected little by Puerto Rico's recent changes.

The female students' descriptions of both the actual and ideal Puerto Rican man are in agreement with the Hispanic model. The actual man was perceived as dominating, jealous, strong, a drinker, and a runaround; while the ideal man was perceived as religious, orderly, noble, respectable, and the like.

The female students showed confusion and uncertainty in describing their ideal self-concepts. Essentially, the female students do not know whether they should become more like their counterparts in the United States or whether

they should remain lovable, obedient, and unpretentious Hispanic women. Many of the female students seem to aspire to being a loved *ama de casa,* but there is no clear-cut self-ideal based on the Hispanic model. In so far as other women in Puerto Rico are similar to these university women, there is a serious identity conflict which may be indicative of future trends for all Puerto Rican women.

The female students' identity conflict is also noted when comparing the very Hispanic attributes assigned to the ideal Puerto Rican woman with the mixed Hispanic-United States traits assigned their own self-ideals. Presumably, the female students are suggesting that Puerto Rican women (in general, but not the individual woman) should be obedient, Hispanic ladies. The individual woman wants to be a combination of the new and the old: noble, lovable, and just; but also useful, a leader, efficient, and active.

The male students assigned predominantly Hispanic characteristics to the actual and ideal Puerto Rican woman. The male students emphasized lovable more than any other female trait, and their responses suggest clearly that the Puerto Rican woman should continue to pattern herself on the Hispanic model.

The male students' descriptions of the actual Puerto Rican man showed some contradictions: i.e., authoritarian versus democratic. Both the male and female students' descriptions of the actual Puerto Rican male indicate that the male is apparently still the master in Puerto Rico.

The identity conflict of the male students appears in their descriptions of the ideal and actual Puerto Rican man. Their descriptions of the ideal man suggest that the Puerto Rican male should approximate more closely the United States' model. Specifically, the male students seem to believe that Puerto Rican men should be less the cavalier, less the flighty, impulsive gadabout; yet few of the male students show any inclination to alter their self-ideals in the direction of the United States' model. Their ideal self-descriptions more closely approximated the Hispanic model than the United States' model, yet in spite of the characterization of the ideal self in terms of the Hispanic model and the ideal Puerto Rican man more in terms of the United States' model, the students do not indicate any personal awareness of the desirability to change—although to remain a traditional *caballero* in 1962 (as the male students' ideal self-descriptions indicate) is patently inappropriate.

There is greater resistance to self-change among male students than among female students. A change toward the United States' model would involve the loss of some of the male's traditional prerogatives. An awareness of this loss may explain partially the fact that the male students showed greater personal resistance to change than did the female students.

It is clear that these students are confused about their identity. Are they North Americans or Hispanic Americans? Should children be inculcated to accept traditional Hispanic values or new United States' values? Or should an attempt be made to modify both the old and the new in order to establish some workable compromise? These questions are difficult to answer. However, it should be pointed out that a recent study of Puerto Rican youth indicates that those Puerto Ricans who adhered *least* to the traditional Hispanic family values were more "neurotic" than those who were holding on to the traditional ways (12). This finding should not be interpreted to imply that the new should be ignored or resisted vehemently or that neurosis is the cost of the abandonment of the old. It does suggest that the old may not be shed rapidly without serious conflicts in identity, values, and beliefs. These are the conflicts typifying those caught in the clash of two cultures.

The direction of change at this time appears to be toward the new and away from the traditional in Puerto Rico. A way of life, of thought, and of family patterns may be destroyed before the new adequately replaces the old. In the process, all the indices of cultural disorganization may continue to increase until the society reaches a more balanced and satisfactory level of homeostasis. Some economic and social advances will certainly be made, but the price will include confusion, contradiction, and avoidable vacuums. The final product may be a strange mutation resembling an animal with the head and torso of the lamb (Puerto Rico's symbol) but with the talons and feathers of an American eagle.

Since social change creates the new by modifying the old, the individual must inevitably experience some degree of personality disorganization, accompanied by feelings of anxiety and tension. But must the cost of economic and social change be exorbitant for the individual? In the case of Puerto Rico it would appear that more careful overall social planning might have minimized the more noxious side effects of rapid development. It also seems clear that countries now planning their economic development can learn from the experience of Puerto Rico, although her case is politically unique. One lesson might be the inclusion from the outset of preventative mental-health measures in all major programs of economic and social change. Another lesson might be to pay adequate attention to the new value orientations that accompany economic change and to their influence upon the host culture. Finally, the culture's preferred destinations (in terms of *overall human* goals and values—not just the economic) should guide all major decisions relevant to economic development.

Several suggestions for further research on value conflicts emerge from the

present inquiry. It would be most valuable to investigate generational differences among Puerto Ricans regarding Hispanic-United States values. It would also be interesting to study value conflicts or lack of conflicts of parents and their children. Such studies could provide invaluable guidelines, especially for the many currently developing areas.

E. Summary

This inquiry is an empirical study of identity conflicts among Puerto Rican youth. The specific purposes of the study were (*a*) to explore the identity conflicts of Puerto Rican university students, and (*b*) to determine the measurable shifts away from the Hispanic cultural models.

Two instruments were used. One was a descriptive checklist in Spanish. The second was a biographical-information sheet. The subjects of the study were 552 freshmen students drawn primarily from middle-class Puerto Rican society. The major results of this study may be summarized as follows:

1. The female students show a more serious identity conflict than do the male students. In essence, the female students desire to remain Hispanic women but they also apparently desire to move closer to the United States' prototype of the female.

2. The male students show greatest identity conflict and confusion in relation to concepts of the ideal Puerto Rican male. The male students apparently believe that the Puerto Rican man should approximate more closely the United States' cultural model. Yet the ideal self-concepts of the male students are very similar to the traditional Hispanic.

3. There is greater resistance to self-change among male students than among female students. This resistance may be explained in part as the fear of loss of some of the males' traditional prerogatives in Hispanic cultures.

4. The shifts in identity appear toward the United States' models among both male and female students. Female students are changing in the direction of United States' models faster than male students.

It was suggested that each society planning economic development should use overall human criteria, rather than just economic criteria, in formulating development programs.

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TRAIT ATTRIBUTION AS A STUDY OF FREUDIAN PROJECTION* [1, 2]

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A. INTRODUCTION

This study was undertaken to clarify the Freudian concept of projection. The most widely held concept of projection is that it is a mechanism by which a person attributes to someone other than himself a trait, affect, impulse, or attitude that is really his but that is too painful, and thus unacceptable to him. For example, Healy, Bronner, and Bowers define projection as a "defensive process under the sway of the pleasure principle whereby the ego thrusts forth on the external world unconscious wishes and ideas which, if allowed to penetrate into consciousness, would be painful to the ego" (7, p. 230). Freud's first written reference to projection (2, p. 180), and several later articles (4, 5, 6) furnish a basis for this conception.

A rather different conception of the mechanism of projection is to be found in Freud's article on the Schreber case (3). This article contains the most explicit and detailed account of projection to be found in any of Freud's writings. In the article, Freud states that the projection furnishes an external justification for the projected feelings so that these feelings can then become conscious. In other words, a person may be well aware of the previously unacceptable impulses that he has projected onto someone else because his perception of these feelings in the other person justifies his having these feelings in himself. "I hate him" is projected into "He hates (persecutes) me (which will justify me in hating him)" (3, pp. 448-449). In this same article, Freud states that projection is also the "normal proceeding" of referring the *causes* of certain perceptions to the external world instead of looking for them inside oneself

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[2] Presented at the Annual Meeting of the Southeastern Psychological Association, Atlanta, 1960.

(3, p. 452). It should be noted that Freud is here making a distinction between the causes of the perception or feeling and the feeling. This concept of projection, as furnishing a justification or cause for one's otherwise disturbing, painful, unacceptable feelings or traits, would seem to be a basis for such concepts as Murray's "complementary apperceptive projection" (8), which he found to be operating when "anxious" subjects saw photographs as "threatening" rather than as anxious.

Sears (9), using the correlation between one's own personality traits and those he attributes to known others as indicative of the mechanism of projection, found that lack of awareness of the trait in oneself led to projection; but that the trait being projected need not be unacceptable. However, because Sears did not include Freud's notion of justification in his definition of projection, he did not test complementary traits.

This study was a variant of the Sears experiment, using trait attribution as the method, but allowing for a test of both similarity and complementary projection. The hypotheses tested were as follows:

1. Hospitalized psychiatric patients, as a group, are likely to show projection because it is a frequent mechanism when psychic tension or conflicts become too great and "reality testing" breaks down (6, p. 878).

2. Projection is especially prominent in patients with a history of paranoid delusions.

3. Projection is more evident in the perception of anonymous photographs than in the judgment of known persons because the judgment of known others is based on reality factors as well as on projection of one's own needs.

4. Projection involves the process of seeking the correlate for one's own trait rather than the simple attribution of one's trait to another person.

B. Method

1. *Measurement*

A checklist of 40 trait adjectives evenly divided as to desirability and undesirability, and brief definitions of the traits were presented to each subject. The subject's task was to check (*a*) the traits that he believed descriptive of his own personality, (*b*) the traits that he believed applicable to each of 12 persons whom he knew, and (*c*) the traits applicable to 12 anonymous photographs from a booklet constructed by Campbell and Burwen (1). The subject was required to rate each person and photograph individually, proceeding down the entire list of traits for each individual, rather than rating across individuals one trait at a time.

The same list of trait adjectives and definitions were presented to 15 hospital nursing aides to obtain their ratings of the subjects. Independent ratings from three aides were obtained for each subject.

2. *Subjects*

The subjects, all male, were inpatients in a large Veterans Administration neuropsychiatric hospital. Of the 54 subjects originally selected on the basis of being in good reality contact, average or better intelligence, sufficient education to understand the definitions of the trait adjectives, and free of "organic involvement," 33 were able to complete the tasks. Sixteen of the 33 remaining subjects (*S*s) had diagnoses of schizophrenic reaction paranoid, while 17 had diagnoses of various other psychoses. The *S*s ranged in age from 20 to 59, with a median age of 33, and their education ranged from seventh grade to a B.S. degree with a median of 12 years of formal schooling.

3. *Reputation and Insight*

The aide's ratings furnished the reputation measures of the *S*s' personalities, and the *S*s were dichotomized on the basis of these ratings for each of the traits. If one or more of the three aides checked a trait for a particular *S*, and the sum of the checks for the opposite trait was less for that *S*, he went into the group presumed to have that trait. This group was then compared with the group not having the trait. Projection was defined as occurring if the group having a particular trait differed significantly in their attribution of traits to the photographs and known persons from the group not having it. For example, if significantly more *S*s in the group of patients reputed to be "hostile" (according to aides' ratings) attributed "hostile" to the photos or known persons than did the group of nonhostile patients, projection of this trait was said to be demonstrated. Chi squares were computed to test for the presence of projection.

C. Results

The group as a whole was dichotomized on the basis of reputation (aides' ratings) for five traits: *Anxious, hostile, stubborn, dependent,* and *generous.* Comparisons were then made of their attribution of selected traits to the photographs and to the known persons. The only "significant" results are summarized in Table 1. Of 114 chi squares only six reached significance—a result likely to occur by chance. In addition to the computation of chi squares, the mean number of times each attributed trait was checked by the two groups was computed. Only four out of 114 *t* tests of significance of differences be-

tween means were obtained. In no instance was paranoid diagnosis found to be a factor.

An additional analysis was made. The 16 paranoid patients were compared with the 17 nonparanoid patients on their attribution of the undesirable traits to the photographs. All differences were in the predicted direction, but only

TABLE 1
ATTRIBUTION OF TRAITS BY SUBJECTS DICHOTOMIZED BY REPUTATION

Attributed trait	Traits of subjects reputation	Using trait	Not using trait	χ^{2a}	p
	Photographs				
Threatening	Anxious	13	0		
	Nonanxious	8	8	6.65	$< .01$
Inconsiderate	Generous	15	2		
	Nongenerous	8	8	4.04	$< .05$
	Known Persons				
Hostile	Generous	13	3		
	Nongenerous	3	13	10.1	$< .005$
Aggressive	Generous	16	0		
	Nongenerous	10	6	5.1	$< .025$
Threatening	Generous	12	4		
	Nongenerous	4	12	6.1	$< .02$
Accommodating	Generous	16	0		
	Nongenerous	10	6	5.1	$< .025$

[a] Yates correction applied to all chi squares.

one reached significance. Since, although only one difference was significant, there might have been a significant difference if all ratings on the undesirable traits were pooled, a comparison was made between the pooled grand means of the two groups. This difference was not significant. The mean for the paranoid group was 51.75; the mean for the nonparanoid was 38.18; and the t was 1.33. As a percentage of their total attribution of traits, the paranoid patients used the undesirable traits more frequently than did the nonparanoid patients. The mean per cent for the paranoid group was 27 per cent; for the nonparanoid group, it was 23 per cent. This difference was not significant ($t = .84$).

Similarly, nonsignificant results were obtained from analysis of the attribution of traits to the known persons by the paranoid *vs.* the nonparanoid groups. When evaluating known persons, the *S*s used the undesirable traits less frequently than when judging the photographs. The mean per cent of undesirable traits attributed to known persons by the paranoid group was 19.6 per cent; and, for the nonparanoid, 15.5 per cent.

D. Discussion

The most obvious conclusion that can be drawn from this study is that projection, defined as a significant difference in attribution of traits by two groups of mental patients differing by reputation, was not demonstrated; and therefore none of the hypotheses are confirmed. The factors likely to have been responsible for the absence of positive results are the relative lack of reliability of the reputational measures, the inconsistencies in the *S*s attributional ratings, the possible unreliability of the diagnoses, or the lack of the validity of the hypotheses themselves.

Reputational ratings of personality traits will have to be based on more than three independent ratings if naive, relatively untrained raters are used. Unfortunately, reputation measures for any one *S* could be obtained from only three aides because additional personnel claimed insufficient knowledge of the patients. In this study, numerous inconsistencies occurred between the aides' ratings of the same *S* and within a single aide's rating of one *S*. Sometimes opposite traits, such as *calm* and *anxious,* were checked by one aide in assessing a single *S*.

The same type of inconsistency, attributing opposite traits to the same photograph or known person, occurred in the ratings made by the *S*s. From the length of time taken by many of the *S*s to complete the tasks, and from their spontaneous comments, it is apparent that the task is too demanding for chronic, hospitalized psychotic patients—even for those who are in relatively good contact and in a state of partial remission.

The reason that significant differences between the paranoid and nonparanoid patients did not arise may be, in part, due to the unreliability of the diagnoses. A single patient often had a history of several different diagnoses. Using a history of delusions, rather than paranoid diagnosis, would have been no more reliable because of the patient's own variability with respect to this factor and the difficulty often encountered in "eliciting delusional content." Furthermore, not all patients with a history of delusional thinking were diagnosed paranoid, which, according to the theory, is the illness most likely to demonstrate projection.

Although the differences that were found might have arisen by chance, it should be noted that in no case was a difference obtained when comparing reputation with attribution for the *same* trait. In particular it was found that, for the trait *anxiety,* the anxious subjects "project" the trait *threatening* rather than *anxious* to the anonymous photographs—a result that would be predicted on the basis of Murray's finding. Also, in spite of the fact that there were no significant differences between the paranoid and nonparanoid patients, the fact

that the paranoid subjects saw others as more hostile, threatening, inconsiderate, immoral, etc. suggests possible validity to the Freudian concept of paranoid projection.

The possibility that the hypotheses, in their present global form, are invalid cannot be overlooked. For example, it may be that anxious patients project the specific trait *threatening* onto others rather than project a constellation of traits including hostile, aggressive, critical, etc.

E. Summary

The relationship between one's own personality traits and the traits he attributes to photographs of people and to known persons was used as a study of projection. Hypotheses based on Freudian theory were not confirmed. Tentative reasons for the absence of confirmation were given. The reasons were believed to lie in the unreliability of the ratings and diagnoses, although the possibility of the lack of validity of the hypotheses was considered. Within the theory, contradictions that lead to different predictions were noted and some of these contradictions were tested.

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THE RELATIONSHIP BETWEEN RELIGIOUS BEHAVIOR AND CONCERN ABOUT DEATH*

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A. PROBLEM

The subject of death has been of concern to men in every age, and the field of religion has long been concerned with the concept of death. But the relationship between religion and attitudes toward death is a subject that only recently has been opened for scientific investigation and even then with some stigma. For example, one may note that a paper on "Death" (7) was included in a symposium entitled "Problems in scientific investigation of tabu areas" at a recent American Psychological Association Convention.

At present there is still little substantial research dealing with religion and death. Much of what there is may be criticized with regard to the measures used, the samples studied, and the statistical analyses employed (or not employed). The purposes of this study are to relate religious attitudes and behavior to concern about death among church-going adults, and to identify some of the areas in which improvements in methodology might clarify the findings of previous studies.

The specific weaknesses in some of the past research in this area seem to be the following:

1. Most of the studies have been done on narrowly defined populations and thus there is some doubt as to the validity of applying the findings to other populations. Among these specific groups were patients in mental hospitals, studied by Feifel (6); older persons, studied by Swenson (10); older persons who are also patients in mental hospitals, studied by Christ (3); college undergraduates, studied by Alexander and Adlerstein (1), and medical-school students, studied by Siegman (9). While research on these groups' attitudes toward death is useful, the conclusions from these studies cannot be liberally applied to more general samples, and the best strategy for research at this stage may well be to concentrate on "normal," typical adults, and specifically on church-going adults.

2. A variable that has not been given consideration in previous studies is

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the contact with death that one has experienced. It seems plausible that the person who has experienced the death of a family member or close friend recently will have thought about death much more than the person whose environment has not been so affected. This variable will be taken into consideration in the present study.

3. Direct questioning, which has been used in most studies, may be inappropriate for reaching the real feeling of respondents, even though good rapport has been established. Projective and depth methods may be more fruitful. This study will attempt to develop some more open-ended measures of concern over death and will use them along with some of the more direct methods previously used.

4. Few studies have concentrated on the differences in fear of death among religious people themselves on a strong-weak dimension. Alexander and Adlerstein (1) have emphasized that the difference between religious and nonreligious persons may be a dichotomous rather than a continuous one, differentiating between "tender" and "tough" minds. The present study will concentrate upon people who are classified as religious, in the sense that they are active church members.

5. Several of the studies dealing with religiosity and fear of death employ no statistical analysis of data. Two of these, by Feifel (6) and by Faunce and Fulton (4), conclude that fear of death is greater among the religiously oriented person. Since this conclusion is at variance with other studies (3, 10) and with certain theoretical explanations of the function of religion, it needs particular scrutiny and test with appropriate statistical tools.

In light of these criticisms, it would seem that a study that involves the administration of a variety of measures of concern toward death to a typical religious sample would be fruitful.

B. Method

1. *Subjects*

The subjects (*S*s) in this study were 58 adults who were members of three churches in the middle Tennessee area. They were distributed as follows: 33 members of the Church of Christ, 13 members of the Methodist Church, and 12 members of the Christian Church. The first two churches are rural congregations, the latter urban. The three congregations are comparable in socioeconomic status, with most of the members in the lower class or lower-middle class. Few subjects had attended college. Their age range was from 18 to 75 years; the mean age was 44.

2. *Instruments*

The following instruments were used in this study:

a. Religious Participation Scale. An adaptation of Ligon's unpublished Religious Participation Scale was used. *S*s were asked to indicate the degree or extent of their church attendance, their personal prayer, their reading of religious material, and their Sunday school attendance. These self reports were accepted as essentially accurate. In addition, each *S* was asked to rate the intensity of his religious convictions in comparison with those of others.

b. Broen's Religious Attitude Inventory. This inventory (2) consists of 58 statements with which the *S* is asked to indicate his agreement or disagreement. The scale measures two factors of religious attitude: a "nearness to God" dimension and a "fundamentalism-humanism" dimension. The construct validity of the scale has been demonstrated.

c. Sarnoff and Corwin's Fear of Death Scale. This scale (8) is a five-item Likert-type scale measuring degree of fear of death. The five items have been shown by item analysis to be measuring the same attitude, and the scale has been shown to have construct validity.

d. An extension of Sarnoff and Corwin's scale. The present authors constructed 10 more items in order to measure fear of death and to extend the length of the Fear of Death Scale. These items were constructed on a priori basis, as were Sarnoff and Corwin's original items. The correlation between these items and the original scale is .46 ($N = 58$), indicating that the new items are measuring only to a moderate degree the same content as the original items. Henceforth, in this study, both the original and the extended version will be used. The original scale will be referred to as the Fear of Death Scale (FD). The extended scale will be referred to as the Extended Fear of Death Scale (EFD).

e. A sentence-completion measure of concern over death. This scale was constructed for this study. Analysis of the past literature indicated an over-reliance upon surface measures of attitude and a lack of depth approaches. This approach is an attempt to introduce a more projective technique. Thirteen incomplete sentences were constructed by the authors to tap death concern or death involvement. Each statement included some word or phrase that served as a death cue, such as "cemetery," "ambulance siren," or "airplane crash." The statements were worded in the following way:

> While passing a cemetery, I_____.
> If death is mentioned in a conversation with someone, I _____
> _____.

Preliminary analysis indicated that six of the statements did not elicit a range of responses suitable for discrimination between groups. The other seven items yielded discrimination on a dimension the authors have called "death involvement." Basically, death involvement is a tendency to use death or death-related words in the responses and to express affect in their use. For example, in completing the statement "While passing a cemetery, I . . . ," a response might be "read the verses on the tomb," or "notice how lovely the grounds are kept." These show an avoidance of death or a lack of involvement and are scored zero. Another response might indicate contemplation of death without any expression of emotion or involvement, such as "think of the dead." This type of response was scored one. A third type of reply, which is death related and involves emotion, is exemplified by "feel sorrowful for all my loved ones who passed away," or "think of the time when I will have to go." These were scored two points. Each statement was scored from zero to two and, since seven items manifested this type of differentiation, a range of zero to 14 was possible. The interscorer reliability between authors for this scoring was 93 per cent agreement.

f. A measure of nearness of death in one's family. This inventory consists of a series of questions that tap the number and recency of deaths in the subject's family and friends. A death within the last five years was considered to be of such proximity to be given special consideration. Deaths of parents, siblings, relatives, children, and close friends were recorded.

3. *Procedure*

The battery of tests was distributed at the close of the regular Sunday service, with the permission and encouragement of the minister of the church. *Ss* were instructed to complete the questionnaires anonymously and to mail them in the stamped envelope. A total of 125 batteries were distributed, of which 67 (or 54 per cent) were returned. Nine *Ss* were excluded from statistical analysis because their answers were incomplete.

C. Results and Discussion

Results for each church and the total sample will be presented, although the discussion will deal primarily with the results for the total sample.

Table 1 indicates that the measures of concern over death tend to correlate significantly and positively with each other. This signifies that the Likert-type attitude scale constructed by Sarnoff and Corwin, the extension constructed by the present authors, and the sentence-completion technique tap similar attitudes. The positive correlation of .46 between the Fear of Death Scale and the

TABLE 1
CORRELATIONS BETWEEN MEASURES OF CONCERN OVER DEATH

Variables correlated	Church of Christ ($N = 33$)	Methodist Church ($N = 13$)	Christian Church ($N = 12$)	Total ($N = 58$)
Fear of Death Scale and sentence-completion scale	.53*	.48*	.20	.46*
Extended Fear of Death Scale and sentence-completion scale	.45*	.28	.08	.34*

* Significant at the .05 level.

sentence-completion scale indicates that persons who respond to a death cue with death-related phraseology and emotion report a greater fear of death than those who avoid death-related and affect-laden responses. This relation might suggest that those who report fear of death are inherently those who are willing to permit conscious awareness of death-related feeling and emotion. There were no significant mean differences between denominations on any of the measures of death concern.

Table 2 indicates that there is no clear-cut relationship between age of the

TABLE 2
CORRELATIONS BETWEEN AGE AND MEASURES OF DEATH CONCERN

Variables	Church of Christ ($N = 33$)	Methodist Church ($N = 13$)	Christian Church ($N = 12$)	Total ($N = 58$)
Sarnoff and Corwin's Fear of Death Scale	.12	—.27	—.33	—.07
Extended Fear of Death Scale	.13	—.52*	—.54*	—.20*
Sentence-completion measure of death involvement	.09	.26	—.44	.00

* Significant at the .05 level.

subject and the extent of his fear or involvement over death. If there is any trend, it seems to go against Feifel's statement that "Old age is the time of life when people most feared death" (5, p. 375), for in two of the congregations there is a significant negative correlation between age and fear of death. Further research needs to be done, using a wide age range and relating it to extent of fear about death, for these findings tend to go against the commonsense notion that as one gets older his concern over death increases.

Table 3 indicates that religious participation is significantly and negatively correlated with two of the death-concern measures. These results mean that

TABLE 3
CORRELATIONS BETWEEN RELIGIOUS PARTICIPATION AND MEASURES OF DEATH CONCERN

Variables	Church of Christ ($N = 33$)	Methodist Church ($N = 13$)	Christian Church ($N = 12$)	Total ($N = 58$)
Fear of Death Scale	—.11	—.32	—.73	—.27*
Extended Fear of Death Scale	—.29*	—.50*	—.70*	—.42*
Sentence-completion scale	—.16	—.27	—.25	—.18

* Significant at the .05 level.

the more religious activity one reports for himself, the less he reports fearing death. Although in general the correlations are small, all nine correlations between the three death-concern measures and religious participation in the separate congregations are in the same direction. The magnitude of the correlations is no doubt influenced by the homogeneity of the subjects in regard to religious participation, but the general tenor of the findings may be interpreted to indicate that religion serves as a means of confronting and reducing one's fear of death. This finding is in agreement with Swenson's conclusion that "fearful attitudes toward death in an older population tend to be found in those persons with little religious activity" (10). It conflicts with Siegman's finding for medical school students that "religiosity was not a significant source of variance in the subject's Fear of Death scores" (9). The conflicting results indicate that conclusions in this area of research cannot be generalized to samples vastly different in age, education, and religious participation.

There was no correlation between one's religious attitudes and the extent of his concern over death or his involvement regarding death. Table 4 indicates

TABLE 4
CORRELATIONS BETWEEN RELIGIOUS ATTITUDE AND MEASURES OF DEATH CONCERN

Variables	Church of Christ ($N = 33$)	Methodist Church ($N = 13$)	Christian Church ($N = 12$)	Total ($N = 58$)
Broen's Factor I (Nearness of God)				
Fear of Death Scale	.01	—.05	.13	.05
Extended Fear of Death Scale	.09	.14	.33	.14
Sentence-completion Scale	.09	—.30	.08	—.04
Broen's Factor II (Fundamentalism vs. Humanism)				
Fear of Death Scale	.30*	.34	—.03	.17
Extended Fear of Death Scale	.10	.36	—.09	.08
Sentence-completion Scale	.08	.43	.34	.03

* Significant at the .05 level.

that neither a feeling of nearness to God (Broen's Factor I) nor one's perception of God as punitive rather than humanitarian (Broen's Factor II) affects one's attitudes toward death. These *S*s were homogeneous on these two factors, however, and in more religiously heterogeneous groups definite relationships might well emerge.

The number and nearness of death experiences were not significantly correlated with any of the attitudes toward death. It appears that the attitudes one forms toward death are not shaped by death contacts.

D. Summary

Fifty-eight adults, members of three Protestant congregations, were surveyed regarding their religious attitude, their religious participation, and their concern about death. Those who reported greater religious participation indicated less fear of death on several measures ranging from a Likert-type attitude scale to a sentence-completion technique. The variables of death contact and religious attitude were not significantly related to attitudes toward death. Contrary to expectation, there is a slight tendency for older members of the congregations to report less fear of death.

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A COMPARISON OF THE USE OF THE SOUND RECORDING AND THE WRITTEN TRANSCRIPT IN THE CODING OF VERBAL INTERACTION* [1]

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A. Introduction

This paper represents a preliminary study comparing two different data conditions for coding verbal interaction. A number of methodological problems involved in carrying out such a comparative analysis are also discussed.

Although there has been an increasing interest in the analysis of verbal interaction, a number of methodological questions relating to the coding process have been neglected. One such question involves the form of the data to be used in the process of coding interaction content. Coding of such material can be done either directly through nonparticipant observation or through the use of tape recordings of the interaction. When interaction is tape recorded it is further possible to code from the written transcript of the tape recording or from the sound recording in conjunction with the written transcript (typescript). To the author's knowledge, however, there have been published no studies that systematically compare any of the above data conditions in the process of coding verbal interaction using a set of interpersonal behavior categories. A number of studies have been reported, however, that compare the treatment of interpersonal data under two or more different data conditions for purposes other than coding in a set of behavior categories. For example, Cohen (2) indicates no advantage in the use of the tape over the use of the typescript for estimating the degree of pathology among schizophrenics. Luft (6), on the other hand, found that persons who listened to recorded interviews could predict responses of subjects to projective test items better than could persons who merely read the typescripts of the interview. These studies do not, however, throw light directly on the process of coding. The study described in this paper specifically involves the coding process by comparing the results

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[1] Revision of a paper read at the annual meetings of the Eastern Sociological Society, April, 1962. This project was completed while the author was working at the Division of Family Study, University of Pennsylvania.

of coding verbal interaction by means of a system of interpersonal categories under two data conditions: (*a*) using the sound recording in conjunction with the typescript and (*b*) using the typescript alone.

Examples of the coding of verbal interaction using each one of the two data conditions to be compared in this study are available in the literature. Lennard and Bernstein (5), using a modification of Bales' category system (1), and Phillips *et al.* (7), using both the Bales' system and the category system developed by Leary and Associates (4), reported the use of the typescript alone for coding purposes. Sweet (9), using Leary's system, and Psathas (8), using Bales' system, reported the use of the sound recording in their coding procedures. However, no adequate basis was reported in these studies for making the choice between the two rating conditions. Sweet did raise the question regarding a possible difference in the results of coding between the two conditions. After pretesting with both data conditions, but without the benefit of systematic empirical evidence, she concluded that ratings were being made more meaningfully through the use of the tape recording.

An argument can readily be presented in support of the hypothesis that there is a difference in results obtained by the two coding procedures. When the tape recording is used for rating verbal behavior, the vocal cues provided conceivably can give a very different connotation to a statement from that which is obtained by simply reading the typescript of the statement. For clinical training purposes, Gill, Newman, and Redlick (3), advocated the use of recordings in preference to written transcripts of interviews because they felt that the expressions of feeling and emotion present in the recording (and absent in the typescript) are necessary to gain the full sense of the interview experience. The same reasoning can be advanced for the use of the tape recording for purposes of coding verbal behavior. If there is a difference it would also be interesting to determine, for any given classificatory system, if there is a difference for all categories or only for specific categories in the system. On the other hand, if there is no difference between the results obtained under the two conditions, the use of the typescript alone would be preferable because using the typescript alone for coding requires considerably less time and effort than does using the tape recorder.

B. Method

The material coded in this study is the verbal behavior of married couples in group counseling sessions.[2]

[2] This study is part of a larger research project involving the analysis of group counseling with alcoholics and their wives being carried out at the Division of Family Study at the University of Pennsylvania.

1. *Design*

There are a number of problems involved in developing a design to examine differences obtained from coding verbal behavior under the two coding conditions. The most obvious method of making such a comparison is to code a complete counseling session under one condition, to code the same session under the second condition, and then to compare the results obtained. This procedure has a major weakness. Coding the data under the first condition will influence the manner in which the data are coded under the second condition. This would be particularly true if the data were first coded under the tape condition and secondly under the no-tape condition. One solution to this problem is to take samples of the data and code one sample under one condition and a second sample under the second condition. This method has the limitation that in the normal process of coding, which entails the coding of an entire session, there is complete continuity from statement to statement. To a degree, sampling from a session will limit the continuity of the statements coded. A second limitation is that when a sampling design is used and the same statements are not rated under both conditions it is not possible to determine how individual statements may shift from one category to another under the two conditions.

Despite the difficulties involved in the use of sampling, a sampling design was used for this study because it overcomes the major problem of an individual coding the same data under both rating conditions.

2. *Sample*

As a means of overcoming the difficulty of lack of statement continuity involved in sampling, a cluster-sample design was chosen. A cluster size of five statements was selected as being close to the minimal number needed to afford sufficient statement continuity.[3]

To obtain a relatively wide representation of sessions, statements were selected from four counseling sessions of each of two groups of married couples in group counseling. After listing the clusters for a given session, a total of 12 clusters to be coded using the tape and 12 clusters to be coded without the use of the tape were selected for each session, through the use of a table of random numbers. In making the comparisons of the coding under the tape and no-tape conditions, the clusters selected from the four sessions of Group I for the tape condition were combined into a single sample, and the clusters selected from the four sessions of Group I for the no-tape condition

[3] The unit chosen to be coded is a complete statement of an individual: i.e., an individual's verbalization (unaffected by interruptions) from the point at which he begins to speak until he stops speaking and another individual begins to speak.

were combined into a single sample. The same procedures were carried out for Group II.

In Group I there were a total of 310 clusters of five statements each from which were selected a total of 48 clusters (12 from each session) for the tape condition and a total of 48 clusters for the no-tape condition. Group II contained a total of 370 clusters of five statements from which 48 clusters were selected for the tape condition and 48 clusters for the no-tape condition.

3. *Rating Procedures*

Two raters were used in the coding process.[4] Each rater was given a training session involving coding of pretest data under both data conditions. No systematic attempt was made to determine if a high degree of reliability had been developed, however, as an analysis of interrater reliability was not the focus of the project.

4. *Category Set*

The category system for classifying verbal interaction used in this project is the one developed by Leary and his associates (4). This category system is one part of a more general system for classifying and analyzing interpersonal behavior. Interpersonal behavior is conceptualized in terms of a two-dimensional circular schema in which dominance–submission is made the vertical axis and love–hate is made the horizontal axis. Types of interpersonal behavior that are combinations of these two dimensions can be located in the space between the reference axes; thus competitive behavior is a combination of dominance and hostility, and dependent behavior is a combination of passivity and affection. For purposes of classifying behavior, the two dimensional space is divided into 16 categories designated by letters ranging from A to P. In order to improve coder reliability, these categories can be taken in pairs resulting in an octant-category set as illustrated in Figure 1. In the octant schema, AP–HI represents the dominance submission axis and DE–LM the love–hate axis.

C. Results

1. *Group I Comparisons*

Table 1 shows the per cents of ratings in the eight Leary categories for raters A and B under the two rating conditions for Group I. For both raters

[4] The author served as one of the raters. The author would like to express his appreciation to Miss Paula Sklarz who, at the time, was research technician at the Division of Family Study, University of Pennsylvania, for serving as the second rater.

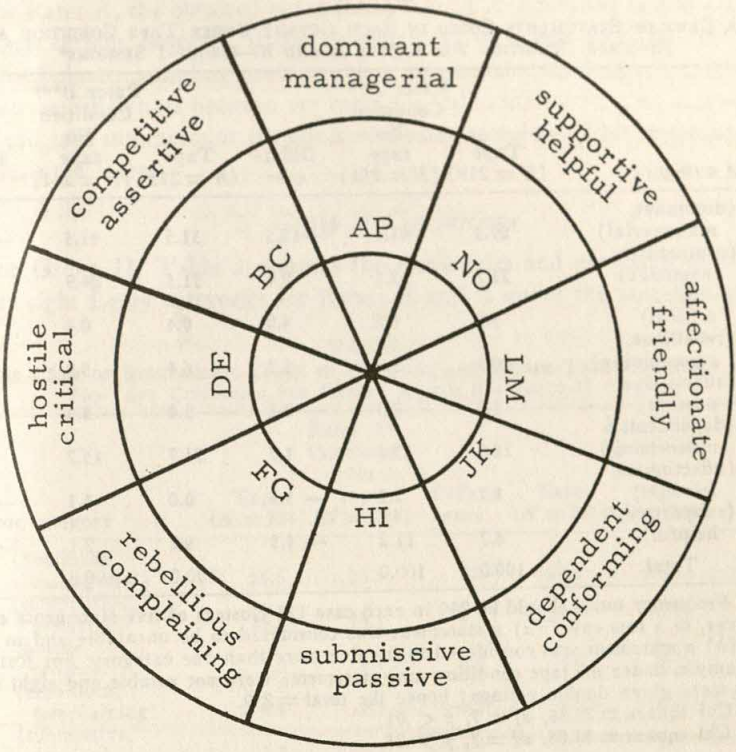

FIGURE 1
OCTANT CLASSIFICATION OF INTERPERSONAL BEHAVIOR
(Adapted with permission from Leary, T. Interpersonal Diagnosis of Personality. New York: The Ronald Press Company, 1957, p. 65)

A and B the distributions for the two rating conditions show basically a similar pattern. The largest percentage differences between the two rating conditions are for Category AP (dominant, managerial) and category BC (competitive, assertive). For both raters, a greater per cent of AP ratings occur for the no-tape condition than for the tape condition, and a greater per cent of BC ratings occur for the tape condition than for the no-tape condition.

As a preliminary method of analysis, a chi-square test of the relationship between the rating conditions and the coding categories is presented for each rater. In interpreting the chi-square value in this case, the fact needs to be indicated that the effect of cluster sampling on this value has not been taken into account. When determined from data obtained through cluster sampling, the degree of significance of association indicated by chi square tends to be exag-

TABLE 1

PER CENT OF STATEMENTS CODED IN EACH OCTANT UNDER TAPE CONDITION AND NO-TAPE CONDITION FOR RATERS A AND B—GROUP-I SESSIONS*

Octant category	Rater A** Condition			Rater B*** Condition		
	Tape ($N = 239$)	No tape ($N = 251$)	Difference	Tape ($N = 235$)	No tape ($N = 241$)	Difference
AP (dominant, managerial)	29.3	41.8	—12.5	31.5	41.5	—10.0
BC (competitive, assertive)	21.7	12.3	9.4	31.5	24.9	6.6
DE (hostile, critical)	9.2	5.2	4.0	0.4	0.4	0.0
FG (rebellious, complaining)	10.9	5.2	5.7	6.4	5.8	0.6
HI (submissive, passive)	1.7	2.0	— 0.3	3.4	3.3	0.1
JK (dependent, conforming)	18.8	17.1	1.7	21.7	15.7	6.0
LM (affectionate, friendly)	1.7	5.2	— 3.5	0.0	1.3	— 1.3
NO (supportive, helpful)	6.7	11.2	— 4.5	5.1	7.1	— 2.0
Total	100.0	100.0		100.0	100.0	

* Frequency totals should be 240 in each case (24 clusters of five statements each). However, in a few cases (*a*) a statement was considered to be unratable and in some cases (*b*) a statement was considered to involve more than one category. For Rater A, for example, under the tape condition nine statements were not ratable and eight statements were given double ratings; hence the total = 239.

** Chi square = 26.86, $df = 7$, $p < .01$.

*** Chi square = 11.06, $df = 7$, $p > .05$.

gerated. This is the case because cluster sampling would have the effect of reducing the sample size, which reduction, in turn, would diminish the chi-square value. In the case of complete homogeneity within clusters, the sample N would equal the number of clusters. It follows that a nonsignificant chi-square value would be certain to indicate lack of significance for cluster-sampling data. In the case of a significant chi-square value determined from cluster-sampling data, the possibility exists that the difference may not be significant. In this case, further analysis can be carried out in the form of tests of differences between per cents for individual categories, a procedure for which the effects of cluster sampling can be taken into account.

It can be seen from Table 1 that, for Rater B, the chi-square value of 11.06 is not significant at the .05 level. Because the effect of cluster sampling would be to reduce this value, the hypothesis of no difference between the two distributions can be accepted.

For Rater A, the obtained chi square of 26.86 is significant at the .01 level. It is not certain, however, if this chi-square value would be significant if the effects of cluster sampling could be taken into account. It is possible, however, to test the differences between per cents for individual categories, a procedure that can take into account the effect of cluster sampling. This procedure will be presented later.

2. *Group II Comparisons*

For Group II, Table 2 presents the frequencies and per cents of codings in the eight Leary categories for Raters A and B under the tape and no-tape

TABLE 2
PER CENT OF STATEMENTS CODED IN EACH OCTANT UNDER TAPE CONDITION AND NO-TAPE CONDITION FOR RATERS A AND B—GROUP-II SESSIONS

Octant category	Rater A* Condition Tape ($N = 234$)	Rater A* Condition No tape ($N = 234$)	Difference	Rater B** Condition Tape ($N = 241$)	Rater B** Condition No tape ($N = 238$)	Difference
AP (dominant, managerial)	26.5	23.5	3.0	27.0	39.9	—12.9
BC (competitive, assertive)	19.2	14.5	4.7	21.6	10.9	10.7
DE (hostile, critical)	7.3	6.4	0.9	1.6	0.4	1.2
FG (rebellious, complaining)	6.8	7.3	—0.5	5.3	6.4	— 1.1
HI (submissive, passive)	1.8	0.8	1.0	1.7	0.8	0.9
JK (dependent, conforming)	23.1	30.0	—6.9	34.9	33.2	1.7
LM (affectionate, friendly)	5.1	7.3	—2.2	0.4	0.8	— 0.4
NO (supportive, helpful)	10.2	10.2	0.0	7.5	7.6	— 0.1
Total	100.0	100.0		100.0	100.0	

* Chi square $= 4.75$, $df = 7$, $p > .05$.
** Chi square $= 17.42$, $df = 7$, $p < .05$.

conditions. For Rater A all of the percentage differences are relatively small and the obtained chi-square value of 4.75 is not significant at the .05 level. For this comparison, therefore, the null hypothesis can be accepted.

For Rater B, the percentage differences between the two rating conditions for categories AP and BC are relatively large. As in the case of Group I, there is a greater per cent of AP ratings for the no-tape condition than for the tape condition and a greater per cent of BC ratings for the tape condition than

for the no-tape condition. The obtained chi-square value of 17.42 is significant at the .05 level. For the cluster-sample case, however, it is possible that the difference may not be significant. As a consequence, percentage comparisons for individual categories will again be made.

3. *Z Test—Groups I and II*

Tables 3 and 4 present the percentage differences and Z scores between the tape and no-tape conditions for categories AP and BC for Groups I and II.

TABLE 3
PERCENTAGE DIFFERENCES AND Z SCORES FOR CATEGORIES AP AND BC—GROUP-I COMPARISONS[a]

Octant category	Rater A: Tape condition minus no-tape condition	Rater A: Z score	Rater B: Tape condition minus no-tape condition	Rater B: Z score
AP (dominant, managerial)	—12.5	2.55[b]	—10.0	1.92[c]
BC (competitive, assertive)	9.4	2.52[b]	7.6	1.58[c]

[a] The effect of cluster sampling has been taken into account in the calculation of the standard error of the difference between per cents.
[b] $p < .05$.
[c] $p > .05$.

TABLE 4
PERCENTAGE DIFFERENCES AND Z SCORES FOR CATEGORIES AP AND BC—GROUP-II COMPARISONS[a]

Octant category	Rater A: Tape condition minus no-tape condition	Rater A: Z score	Rater B: Tape condition minus no-tape condition	Rater B: Z score
AP (dominant, managerial)	3.0	.71[b]	—12.9	2.95[c]
BC (competitive, assertive)	4.7	1.09[b]	10.7	2.95[c]

[a] The effect of cluster sampling has been taken into account in the calculation of the standard error of the difference between per cents.
[b] $p > .05$.
[c] $p < .01$.

The analysis is limited to Categories AP and BC because they are the only categories with consistently large percentage differences. Since the effect of cluster sampling is taken into account in these tests, the results are more dependable than in the case of the chi-square analysis.

It can be seen that these results confirm the chi-square analysis. There are significant differences between the tape and no-tape conditions for Categories AP and BC for Group I, Rater A, and Group II, Rater B. Further, it can be

seen that there is a higher per cent of ratings in Category AP for the no-tape condition than for the tape condition and a higher per cent of ratings in Category BC for the tape condition than the no-tape condition for these two comparisons. In fact, for Category BC, there is a greater per cent of codings for the tape condition than for the no-tape condition for all four percentage comparisons although two of the differences are not significant. For Category AP, the pattern of more ratings for the no-tape condition than for the tape condition holds in only three of the four possible cases. For group II, Rater A, there is a slightly higher per cent of codings for the tape condition than for the no-tape condition.

D. Discussion

These findings indicate that, when using the Leary set of categories for coding verbal behavior, differences occur only to a limited extent between the results of coding when the sound recording is used in the coding process and when the sound recording is not used in the coding process. Furthermore, when differences do occur to any appreciable extent, the differences principally involve Categories AP and BC. For this study, a greater number of statements were coded AP when the typescript was used than when the sound recording was used, and a greater number of statements were coded BC when the sound recording was used than when the typescript alone was used. It is strongly suggested, therefore, that much of what would be coded BC when the voice quality is provided would be coded AP when only the written record of interaction is available.

This postulated AP-BC shift cannot be demonstrated conclusively, however, since the *same statements* were not coded under both rating conditions. It is possible that the results could have been due at least in part to rater unreliability. The prediction of an AP-BC shift resulting from differences in the two rating conditions is clearly suggested by the results, however, and consequently will be used as the basis for hypothesis formulation to guide further research.

A basis for the difference found for Categories AP and BC can be sought in the different natures of the two categories. Category AP concerns behavior indicative of dominant status—directing, controlling, and managing forms of behavior. Theoretically, this category is neutral with regard to affect. It involves directing, controlling, and managing behavior devoid of the expression of positive or negative feeling. On the other hand, behavior falling within Category BC implies superior status on the part of the actor but is also imbued with a quality of negative feeling. Competitive, exploitative, and admonishing acts are representative of this category.

Since the primary factor that distinguishes Category BC from Category AP is that Category BC possesses a component of negative feeling and Category AP does not, it is suggested that the negative quality in a statement is not readily distinguishable when the typescript alone is used. When the voice quality is made available through use of the sound recording, however, the component of negative feeling, when present, is recognizable. This leads to the conclusion that the negative-affect component of a statement is contained largely in the sound of the voice, whereas the dominance component of a statement is sufficiently contained in the lexical and syntactical aspects of a statement.

On the basis of this assumption it would be predicted that more statements would be rated DE and FG under the tape condition than under the no-tape condition, as both of these categories also possess a component of negative feeling. The testing of this hypothesis, however, requires a study for which the frequencies for these two categories are larger than is true for the present project.

The results obtained in this study refer directly to the Leary set of categories. It is possible, however, that the results may have implications for other category sets as well. What, for instance, would be predicted regarding Bales' (1) category set, the other prominent system developed for coding interaction content? The categories in Bales' schema are divided into a positive social-emotional area, a negative social-emotional area, and a neutral instrumental area. On the basis of the evidence presented in this study, it could be predicted (*a*) that more statements would be coded in the instrumental area under the no-tape condition than under the tape condition; (*b*) that more statements would be coded in the negative social-emotional area under the tape condition than under the no-tape condition; and (*c*) that there would be no significant difference for the positive social-emotional area in the number of statements coded under the tape and no-tape conditions.

The analysis carried out in this project could be extended profitably to Bales' schema and to other category systems for classifying interpersonal behavior, as well as to the categories of the Leary schema, which in this study did not contain frequencies sufficiently large for purposes of comparison.

E. Summary

The verbal behavior of married couples in group counseling was coded under two rating conditions: (*a*) using the sound recording plus the written transcript and (*b*) using the written transcript alone. The category set used for

ordering the data was the Leary schema of interpersonal categories. To a considerable extent, the results of coding under the two rating conditions were similar although for several categories the frequencies were so small as to make meaningful comparisons impossible. The principal difference found in coding under the two conditions was that for statements made up of components of both hostility and dominance the hostile component was more readily distinguishable when the sound of the voice was heard than when the written transcript alone was used in the coding process.

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CONFORMITY IN COOPERATIVE AND COMPETITIVE GROUPS*

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A. INTRODUCTION

This investigation reports an experiment designed to find the effects upon conformity of varying subjects' set, in terms of different degrees of competition and cooperation. The aim is to find under what conditions of competition and cooperation, conformity is the more strongly represented.

Sherif (10), Asch (2) and Crutchfield (5) pioneered in devising laboratory techniques for the measurement of conformity. Sherif showed how a subject's reports of a movement of a pinpoint of (stationary) light could be altered by his hearing other subjects' judgments of the same autokinetic effect. Asch reports a series of experiments in which groups were given the task of comparing the lengths of successive sets of lines. All the members except one were instructed by the experimenter to respond erroneously. The single uninstructed member was then confronted by a situation in which all other members of the group were perceived to be in error. Two-thirds of the uninstructed subjects gave the correct response and one-third of the subjects gave responses that corresponded with the erroneous reports of the unanimous majority. A main deficiency of Asch's procedure was the need for the experimenter and also his confederates to devote an hour or so to the testing of each subject.

Crutchfield devised equipment to dispense with the confederates and to enable a set of five subjects to be exposed to group pressure simultaneously. The defect of his technique is the expense involved in building the electronic equipment.

Mathie devised less expensive equipment, financially within the reach of almost any experimenter, which would serve the same function as Crutchfield's.

It is difficult to isolate all variables dependent upon conformity. The ambiguity of the stimuli, the motivations of the individual, and the group task (e.g., group goals) are among the more important, and these will be considered in turn.

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Deutsch and Gerard (7), in studying conformity, have distinguished between normative and informational social influences. A normative social influence may be defined as an influence to conform with the positive expectations of another person. An informational social influence may be defined as an influence to accept information obtained from another person as evidence about reality. Using normative and informational influence as a guide, we can understand better the experiments that have been conducted on conformity.

Sherif's study (10) falls under the heading of informational influence. The subjects in this investigation were willing to accept the judgments of others as valid. The *subjects were motivated to be accurate.* The stimulus was highly ambiguous. It was a pinpoint of light in a pitch-black room. In other words, this was clearly an unstructured situation.

On the other hand, Asch's investigation (2) falls under the heading of normative influence. Subjects were influenced to conform with the positive expectation of other group members. The stimuli were unambiguous. They were lengths of pairs of lines. *Subjects were motivated to be accepted* by other subjects as well as by the experimenter.

Conformity, as evidenced from Asch's and Sherif's work can be produced under a variety of circumstances. Group goals and the motivations of an individual are among the more important related variables. With this in mind, we can turn our attention to the motivations and group goals associated with cooperation and competition.

What makes people cooperative or competitive is partly a function of individual personalities, partly a function of cultural expectancies, and partly a function of the social situation—with all three variables interrelated (11).

Cooperative groups have been shown to be more highly task motivated than competitive groups (6). The term "promotively interdependent" is used to describe the individual in the cooperative groups. His results indicate that these interdependent subjects were more highly motivated toward the assigned group task than were the less promotively interdependent members of the competitive groups. It has been hypothesized that individuals will cooperate rather than compete when cooperation is perceived as a means toward achieving shared goals (1).

1. *Effects of Cooperative and Competitive Sets*

Cooperative and competitive sets could have differential effects on both the extent to which group members will accept the judgments of older members as valid and the motivation to comply with the expectations of others. The

effects will tend to supplement each other in leading to greater conformity in cooperating groups than in competing groups.

a. Effects on the perception of group members. In the cooperative group the goal is dependent upon the actions of others as well as on those of the individual. The instructions specify that effective coordination among *all* members is required for success. Because competence of others is required for success, then each group member in the cooperative setting is motivated (by induction) to achieve the group goal; hence the member is likely to perceive selectively the judgments of others during the course of the early task judgments and to acquire an impression of others as relatively competent and accurate. In the competitive situation, the subject is rewarded only if the others are *not* competent. Therefore, his need for success could lead to selective interpretation during the early judgments of others as less competent and accurate.

b. Effects on the motivation to comply. In the cooperative group a member knows that he will be accepted by others if he "helps" and rejected if he "hinders" the group. When all other group members answer in an identical fashion, the member may be hypothesized to be not only less *certain* of his own judgment, but also to face the likelihood of rejection if incorrect. On the other hand, if he conforms and is incorrect he does not risk rejection; thus the cooperative-group member, as contrasted with the competitive-group member both is more strongly motivated for acceptance and risks less through conforming.

2. *Hypothesis*

The hypothesis of the present study is that *people in a cooperative-group setting (i.e., where an assigned common group goal is stressed) will conform more than people in a competitive-group setting (i.e., where an individual goal is stressed).*

B. Methodology

1. *The Groups*

The general scheme of the experiment was to try to change the subjects' set toward cooperativeness or competitiveness by varying the instructions and then to find the effects of this in an aptitude-test situation designed to induce and measure conformity behavior. The four experimental groups were as follows:

a. The cooperative group. A group of 30 *S*s, tested in sub-groups of five, was told that the *group* with the highest per cent of correct answers in the test situation would win a prize. The intention was to induce a cooperative set in the *S*s.

b. The competitive group. Another group of 30 *Ss* was told that the *person* with the highest per cent of correct answers would receive a prize. The intention was to induce a competitive set.

c. Control Group A. This group of 30 *Ss* took the aptitude test under the same conformity conditions as the two preceding groups. However, no prize was offered to these *Ss*; i.e., no attempt was made to induce any particular set.

d. Control Group B. Each member of this group of 86 *Ss* answered the aptitude-test items independently (i.e., without exposure to the conformity-producing situation) and with no possibility of being influenced in responses by others. The purpose of testing this group was to determine the level of objective clarity or ambiguity (or difficulty) of the test items.

All *Ss* in the experiment were volunteer male students enrolled in psychology classes. By restricting *Ss* to males, it seemed that the subgroups would be more homogeneous and sex differences in conformity would be eliminated. For material on sex differences, see Beloff (3), Crutchfield (3), Mouton (8), and Nakamura (9).

2. *Experimental Changes in Instructions*

The oral instructions for the cooperative group included the following paragraph:

> It is important that you do well as a group. I am running other groups in this experiment that are similar to this one. The group with the highest per cent of correct answers will receive a prize. The prize will consist of $5.00, which will be divided equally among the members of the winning group. It is important to remember that this is an experiment in group dynamics and, therefore, the group as a whole must do well. It is not important how well each of you does as an individual. What is important once again is that as a group you do well.

The oral instructions for the competitive group included the following paragraph:

> It is important that each of you does your very best. I am running other groups in this experiment that are similar to this one. The individual with the highest per cent of correct answers will receive a prize. The prize will consist of $5.00. For this reason it is to your benefit to do as well as you can because one of you might receive the sum of $5.00 for your participation in this experiment.

3. *Apparatus*

The apparatus for inducing conformity was designed by James P. Mathie.[1] It consists of five cubicles arranged on tables in a straight line. See Figure 1.

[1] James P. Mathie designed the apparatus (1959).

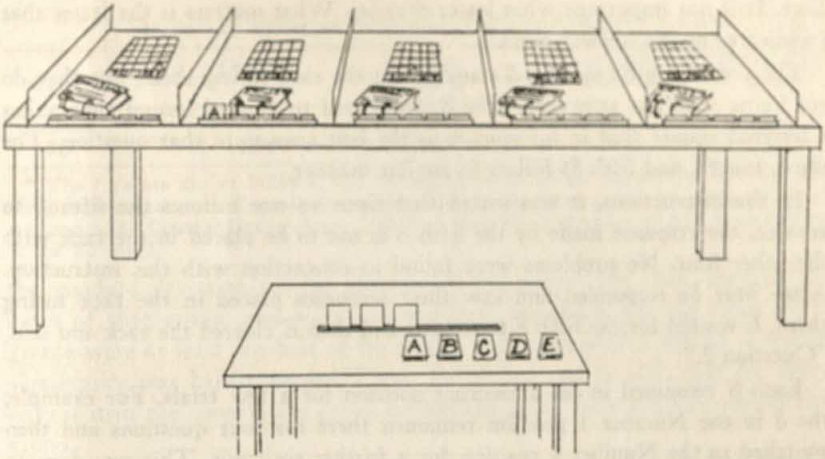

FIGURE 1
APPARATUS

One subject is instructed to sit in each cubicle. Before each subject is an answer sheet and a pack of 50 numbered index cards on each of which is a question and five answer choices, lettered A through E. On each card, a number in the upper right-hand corner instructed each *S* on the order in which he was to answer each question.

A series of plywood squares, with the letters A through E, one letter being on each square, is connected by hinges to the front end of the cubicle, which faces the experimenter. On another table, in front of the experimenter, but facing the *S*s, is a rack and 20 plywood lettered squares: *viz.*, four for each letter A through E.

4. *Procedure*

The *E* announces, "Question 1." The *S* designated to respond first for Question 1 (i.e., the *S* with "1" on the upper right-hand corner on his index card) raises the plywood lettered square that corresponds with what in his opinion is the best answer to the question. This response can be seen by *E* but not by other *S*s. *E* then places *S*'s response on his rack where all *S*s can see it, and the first *S* to respond quietly lowers his card, so that no one but he and *E* know who has answered.

When all *S*s have answered the first question, they are instructed to check their answer on the answer sheet in front of them. Therefore, *S* may have showed *E* one letter, but he may have recorded a different letter on his answer

sheet. It is not important what letter *S* raises. What matters is the letter that *S* indicates on his answer sheet.

The remaining *S*s see this *S*'s answer on the rack facing them, but they do not know who has answered. The *S* designated to answer second then raises a lettered square that in his opinion is the best answer to that question. The third, fourth, and fifth *S*s follow in similar manner.

In the instructions, it was stated that since no one follows the fifth *S* to answer, the response made by the fifth *S* is not to be placed in the rack with the other four. No problems were found in connection with this instruction. After four *S*s responded and saw their responses placed in the rack facing them, *E* waited for the fifth *S* to answer and then *E* cleared the rack and said, "Question 2."

Each *S* remained in his answering position for a few trials. For example, the *S* in the Number 1 position remained there for four questions and then switched to the Number 4 position for a further six trials. This was done so that *S*s would get used to being in the same position for a period of time. The first 25 questions were not relevant to the conformity results since each *S* was in a different answering position: namely, one through five.

The conformity part of the experiment started with the 26th question. All *S*s were now in the fifth or last answering position. By looking around indiscriminately, *E* put up four answers as before, but in this case there was no one answering in these positions. All four answers were identical (i.e., four A's, four B's, etc.), but were wrong. The issue in these critical items was whether *S*s would give what they considered to be the generally accepted answer, even though it was wrong.

Items 27 through 35 and 41 through 50 proceeded in a similar manner. Items 36 through 40 were neutral items in which *S*s once again returned to having various answering positions. For these 20 critical items, each *S* was faced with the situation in which all four other *S*s appeared to have answered identically but erroneously. Conformity was measured by the extent to which each *S* accepted these pseudo-conformist responses.

C. Results

1. *Comparison of Groups*

Mean conformity scores for the four groups are given in Table 1. The hypothesis that subjects with a cooperative set would conform more than those given a competitive set was confirmed. Mean conformity scores were 11.53 and 7.30 respectively. The difference is significant at the .01 level. Since

TABLE 1
MEANS AND STANDARD DEVIATIONS FOR THE CRITICAL ITEMS*

Parameter	Control Group A	Control Group B	Cooperative group	Competitive group
Mean	7.40	2.60	11.53	7.30
SD	3.70	1.71	4.76	3.75

* The *t* values are as follows: 3.81 (cooperative group *vs.* competitive group), 3.72 (cooperative group *vs.* Control Group A), 0.10 (competitive group *vs.* Control Group A), and 6.76 (Control Group A *vs.* Control Group B). A *t* value of 2.58 is significant at the .01 level.

the standard deviation for the cooperative group was less than one-half the mean of that group, and since the standard deviations for the other three groups were at least one-half of the mean of their respective groups, a test of significance was hardly needed. From Table 2 it can be seen that for *every* critical item the cooperative group conformed more than did the competitive group.

Control Group A had been expected to conform less than the competitive group, but the mean difference of .10 is not significant and indeed is in a direction opposite to that anticipated. Inclusion of the instructions "to do your very best" does not seem to have made any difference. In other words, the uninstructed *S* seems to approach the task with much the same attitude as the *S* specifically encouraged to be competitive.

A third comparison of interest is that between the two control groups. In Control Group B, with no pressure to conform, there was a mean score of 2.60 in the "conformity responses" to the 20 critical items. These represent guesses and random item responses or items in which *S* believes the error response selected by other groups for conformity to be the right one. In Control Group A, the mean score was 7.40. This mean differs significantly from that for Control Group B and the difference represents the effect of the conformity situation.

The foregoing results are corroborated by consideration of the correct responses. Table 3 gives means for correct answers for the 20 critical items. Control Group B, answering without pressure to conform, had a mean score of 9.47 correct responses. This score fell to 6.73 and 6.33 for the competitive group and Control Group A and to 5.26 for the cooperative group. This decline in correctness of response is attributable to conformity pressure.

Answers given by Control Group B may be assumed to indicate the difficulty of the items under "neutral" conditions. In Table 4 the critical items are ranked in terms of difficulty.

Table 5 gives means for the 10 easier and the 10 harder questions. Since all

TABLE 2
ANSWERS GIVEN TO ALL ITEMS BROKEN DOWN INTO THEIR RESPECTIVE GROUPS OF SUBJECTS

Item number	Control Group A			Cooperative group			Competitive group			Control Group B		
	Forced	Correct	Other alter-natives	Forced	Correct	Other alter-natives	Forced	Correct	Other alter-natives	Forced	Correct	Other alter-natives
26	16	12	2	21	8	1	17	9	4	22	54	10
27	9	14	7	16	13	1	14	12	4	10	61	15
28	12	5	13	18	4	8	13	11	6	4	37	45
29	9	19	2	14	15	1	11	15	4	11	59	16
30	10	15	5	13	15	2	7	16	7	0	65	21
31	6	21	3	11	18	1	4	20	6	5	58	23
32	10	8	12	23	3	4	10	8	12	10	29	47
33	18	3	9	21	5	4	11	7	12	20	31	35
34	4	16	10	10	14	6	6	15	9	1	65	20
35	13	9	8	19	11	0	12	15	3	7	56	23
41	12	3	15	20	0	10	13	1	16	5	8	73
42	5	10	15	11	11	8	5	12	13	3	44	39
43	14	8	8	19	6	5	15	6	9	23	35	28
44	24	2	4	24	1	5	16	4	10	18	38	30
45	7	5	18	16	3	11	9	4	17	7	23	56
46	9	13	8	20	7	3	12	13	5	10	45	31
47	4	9	17	11	7	2	8	8	14	7	15	64
48	7	7	16	14	6	10	9	8	13	4	26	56
49	8	11	11	18	10	2	7	13	10	18	53	15
50	24	0	6	27	1	2	20	5	5	44	13	29

TABLE 3
MEANS OF CORRECT ANSWERS OF THE 20 CRITICAL ITEMS

Group	Mean
Cooperative group	5.26
Control Group A	6.33
Competitive group	6.73
Control Group B	9.47

TABLE 4
CRITICAL ITEMS RANKED IN TERMS OF DIFFICULTY

Rank	Item number	Control Group B	Cooperative Forced	Cooperative Correct	Competitive Forced	Competitive Correct	Control Group A Forced	Control Group A Correct
1.5	34	65	10	14	6	15	4	16
1.5	30	65	13	15	7	16	10	15
3	27	61	16	13	14	12	9	14
4	29	59	14	15	11	15	9	19
5	31	58	11	18	4	20	6	21
6	35	56	19	11	12	15	13	9
7	26	54	21	8	17	9	16	12
8	49	53	18	10	7	13	8	11
9	46	45	20	7	12	13	9	13
10	42	44	11	11	5	12	5	10
11	44	38	24	1	16	4	24	2
12	28	37	18	4	13	11	12	5
13	43	35	19	6	15	6	14	8
14	33	31	21	5	11	7	18	3
15	32	29	23	3	10	8	10	8
16	48	26	14	6	9	8	7	7
17	45	23	16	3	9	4	7	5
18	47	15	11	7	8	8	4	9
19	50	13	27	1	20	5	24	0
20	41	8	20	0	13	1	12	3

TABLE 5
MEANS FOR THE 10 EASIER AND THE 10 HARDER QUESTIONS

Group	Mean of 10 easier questions	Mean of 10 harder questions	t values*
Cooperative group	4.06	1.20	5.54
Control Group A	4.66	1.66	5.82
Competitive group	4.66	2.06	5.54
Control Group B	6.51	2.96	

* A t value of 2.58 is significant at the .01 level.

*t*s were significant at the .01 level, there was confirmation of the expectation that people who knew an answer gave it, whereas those who did not know an answer went along with the group answer *for all experimental groups*. In other words, forcing was much more effective with the difficult items (as established by Control Group B) than with the easier items. See Table 4.

2. *Analysis of Results*

1. The cooperative group provided slightly fewer correct answers than either the competitive group or Control Group A. The big difference seems to have been with the answers not known for, in this instance, there was a greater incentive to follow the group.

2. The competitive group showed less incentive to follow the group when the answers were not known.

3. Control Group A, like the competitive group, showed no observable difference in regard to being influenced by the group. Evidently the addition of prize money made no difference. This reduced incentive of the competitive group was more characteristic of subjects without set than the increased incentive of the cooperative group.

4. Control Group B answered more of the items correctly than did any other group because they allowed themselves to be forced on only 2.6 of the choices as compared with Control Group A and the cooperative group who allowed themselves to be forced on 7.4 and 11.53 of the choices respectively.

D. Discussion

1. *The Attitude Set*

The results demonstrate that people placed in a situation believed to encourage cooperation conform more than those who believe themselves to be in a competitive situation.

Because the mean of conformity for the competitive group was almost identical with that for Control Group A (where no prize was involved although the experimental situation was identical), two explanations are possible. One is that people tend to compete with one another when placed in a group atmosphere, even when not specifically instructed to do so. Another explanation is that *E* did not induce a competitive set.

The first explanation appears more likely for the following reason. Competition may involve competing against others or competing against some personal standard (e.g., doing well). In other words, the *S*s in Control Group A might not have competed against each other, but due to a personal standard tried to do as well as they possibly could. This would explain the fact that *regardless of the experimental group* an individual is in, if he knows an answer to a particular question he is likely to record it as such on his answer sheet. If he does not know the answer, then he will go along with the group answer.

It would seem logical for an individual (in the cooperative group) who knows a correct answer to record it rather than to follow his group in recording

a wrong answer, which action will obviously hinder rather than help the group. In other words, putting down a wrong answer will reduce the per cent of right answers; yet, of the 30 subjects in the cooperative group, hardly anyone seems to have approached the situation from such a logical point of view. These subjects could not give *E* an explanation for their conforming, especially when conformity in this case (to an answer they knew was wrong) would hinder the group. By the same token, it can be said that if most people thought of this possibility, there might well have been no significant difference.

In the competitive situation, if an individual does not know an answer his taking the group answer that he believes four other individuals have agreed upon would not give any one individual an edge on that particular question. All would get it right or all would get it wrong. However, if an individual not sure of an answer dissented from the group answer, he might be right, the group might be right, or neither he or the group might be right. Therefore, such a person has a greater incentive to gamble by selecting his own answer, for if it happens to be the right one he will secure an advantage over his competitors.

Because the mean of correct answers for the cooperative group was close to the means of the competitive group and Control Group A (no prize involved), it is reasonable to conclude that subjects who knew an answer gave it, rather than succumbed to the group answer they knew was wrong. That is to say, subjects in the cooperative group were competing with each other to a certain degree. Since the mean for the correct answers for the competitive group and Control Group A were similar ($M = 6.73$ and $M = 6.33$ respectively), both of these groups adapted a relatively competitive set. In other words, when placed in a group situation, individuals try to do well. This analogy also holds true for the cooperative group, but to a lesser degree since the mean of 5.26 is not as close to the mean of 6.73 as is the mean of 6.33 for Control Group A.

This point of view has been presented by Coleman *et al.* (4) and by many other researchers. The contention is that an individual will be more able to resist conformity pressure from the group if he is certain of the correct answer. External information (looking at other people's answers) will become important only when the individual is unfamiliar with the correct answer. If an individual is certain of the correct answer, he will be more apt to respond in terms of internal cues (aptitudes, motivations, etc.) than in terms of external information, such as copying someone else's answer in the face of uncertainty.

During the course of the experiment, *E* learned that sometimes people knew the right answer to a particular question, but (nevertheless) went along with

the group answer even though they knew the group was wrong. This phenomenon occurred in all groups except Control Group B, the members of which took the test independently. This fact offers one explanation of why Control Group B answered correctly more of the critical items than did the other three groups. The *S*s in Control Group B were comparable to the *S*s in the other groups, so this fact would discount the idea that *S*s in Control Group B were from a different population.

This finding seems to contradict an earlier assertion that correct answers will be recorded correctly in any group. However, the idea that *S* gave an answer when he knew it and tended to follow the group answer when he did not know the answer is supported by the results. Therefore, the verbal reports of *S*s must not be taken as a fact that can be statistically verified. In other words, what *S*s said they did was not corroborated with the results of what they actually did.

A discussion of the time element involved in the testing situation is now in order. Members of Control Group B handed in their papers when they were finished. No time limit was enforced. Most *S*s in this group took the test home and handed it to *E* the following day.

Members of Control Group A, the cooperative group, and the competitive group also had ample time, with no limit enforced, for taking the test in the experimental situation. For the first 25 items, the *S*s in these three groups answered the items at their own speed. For the remaining critical items, *E* used as a guide the time it took for that particular group to answer Questions 1 through 25. For example, if a given group took one-half hour to answer Questions 1 through 25, *E* allowed at least another half hour to answer the remaining 25 questions. Indeed, since the remaining 25 questions were more difficult, *E* usually allowed an extra 10 to 15 minutes beyond that. Upon questioning the *S*s after the experiment, hardly anyone reported having been rushed. The average time for a group of five *S*s taking the test in the experimental situation was one hour and 15 minutes, with a range from 50 minutes to one and one-half hours.

2. *Limitations of the Study*

The statistical testing indicates that the results can be generalized to other comparable groups with relatively small risk. However, the results can not be generalized to noncomparable groups. Another limitation of the study involves the stimulus material. The degree of ambiguity of the test items must be considered in regard to generalization. Different questions involving different degrees of ambiguity might give an investigator quite different results.

E. Summary and Conclusions

Each of three groups of 30 subjects were tested on an aptitude-like test in an experimental situation intended to produce conformity behavior. It was assumed that a person's set could be changed by varying the instructions to induce in him a spirit either of cooperativeness or competitiveness. The three experimental groups were (*a*) a cooperative group, (*b*) a competitive group, and (*c*) Control Group A (tested in the conformity situation with no specific set induced). A fourth group, Control Group B, consisted of 86 subjects. The major findings of the thesis are as follows:

1. The hypothesis has been supported that people in a cooperative-group setting (i.e., working towards a common assigned goal) will conform more than people in a competitive-group setting (i.e., working for an individual goal).

2. People are generally competitive when placed in a group setting. It was found that individuals in the cooperative group were competing to some extent. Competition for the cooperative group was probably not directed to others, but directed to a personal standard: e.g., doing well. In Control Group A, competition was evidenced by the fact that the means of the correct answers for both the competitive group and Control Group A were almost identical.

3. Individuals who knew an answer to a particular question gave it, while individuals who were not sure or did not know an answer to a particular question went along with the group answer. This was true *regardless of the experimental situation* the individual was in (i.e., regardless of rewards, instructions, and group atmosphere).

4. When *S*s did not know an answer to a question there was a greater incentive to follow the group in the cooperative setting and a lesser incentive to follow the group in the competitive setting.

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LEADERSHIP, GROUP EFFECTIVENESS, AND SPEED OF DECISION*

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A. INTRODUCTION

Previous research (3) has shown that the speed with which people make decisions is associated with certain specific personality characteristics. Shortly before these findings were published, Deutsch (7) and Guilford (10) suggested that decision time is a function of personality and may be considered as a personality characteristic in its own right.

In a recent study of the performance of problem-solving groups, Dubno (8) found that those groups whose appointed leaders scored high on the psychasthenia (Pt) scale of the Minnesota Multiphasic Personality Inventory (MMPI) were significantly more effective in problem solving activities than were the groups whose appointed leaders scored low on the scale. The study demonstrated that Pt-scale scores were significantly related to speed of decision; i.e., *S*s with slow decision-time scores[2] obtained significantly higher Pt scores than *S*s with fast decision-time scores. The hysteria (Hy) scale was also administered to all *S*s, but it failed to differentiate between fast and slow decision-time scorers. The Pt scale was included in the study because it was presumed to measure personality or behavioral characteristics, such as cautiousness, hesitation in making up one's mind, and procrastination. The Hy scale was included because it was presumed to measure the extent to which people respond impulsively to various situations. The speed with which people reach decisions is therefore implicit in the characteristics measured by both scales. However, later research published on the Hy scale (6) indicated that the scale may be primarily a measure of normality when used on nonhospital subjects. Dubno's study (8) also showed that leader effectiveness was related to

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[2] Decision-time scores were obtained by testing *S*s in an apparatus designed to obtain speed-of-decision measures (5).

high scores on the Pt scale when leaders were required to function under experimental conditions in which quality of performance was stressed.

The purpose of the present study is to examine more closely the relationship between personality characteristics (as measured by the Hy and Pt scales) and effectiveness in leadership roles. In contrast with the previous experimental design, leaders in the present study were not appointed for experimental purposes, but emerged spontaneously in the course of group action and were identified as leaders by group members, by means of peer nominations. The following hypotheses were formulated:

1. Psychasthenia (Pt) scores of the MMPI distinguish emergent leaders from followers.
2. Hysteria (Hy) scores of the MMPI fail to distinguish emergent leaders from followers.
3. Psychasthenia (Pt) scores distinguish leaders of high-effective groups from leaders of low-effective groups.
4. Hysteria (Hy) scores fail to distinguish leaders of high-effective groups from leaders of low-effective groups.

The rationale for the hypotheses regarding the Hy scale was based on the assumption that the scale was primarily a measure of characteristics common to all people and that it would fail to reveal differences between leaders and nonleaders. Direction of differences on the Pt scale was not hypothesized because, in addition to the fact that leaders were appointed in the previous study, the groups were involved in the solution of a mechanical task rather than in the classroom-discussion atmosphere of the present study. Other studies (4) have shown that task variables have an important effect on group behavior and on the emergence of leadership behavior.

B. Subjects

Subjects were 290 students attending management classes at New York University. Nearly all of the students were seniors, the rest were juniors. Each class was regularly organized in a manner such that instructors were required every semester to form students into four to six groups in each class depending on class size. Groups remained together each time the class met for a period of 15 weeks. Each group consisted of five to nine students, again depending on class size. The purpose of each class was to develop skill in business policy-making, human relations, and conference methods. A total of 42 groups located in 10 classrooms were available for the study. Each of the 10 instructors volunteered his class for the study.

C. Method

At the beginning of the semester, *E* entered each of the classes and requested all students to complete a personality questionnaire for a study that he was conducting. The hysteria and the psychasthenia scales were then administered. *E* did not return to these classes until the last week of the semester at which time a request was made that the groups rank their members according to leadership activity. Thus, peer nominations were obtained prior to the posting of grades and provided a leadership-ranking score for each member. Ranks were transformed into z scores (15, p. 259) and served to identify the member with the highest score as the leader in each group. No manipulation of situational variables was attempted. Several *S*s were curious as to the results of the peer nominations and personality questionnaires and were invited to discuss results with *E* at a later date. Only three *S*s, however, availed themselves of the opportunity.

In addition, the 10 instructors who functioned as observers of group discussions in their own classes rated each group (on a seven-point graphic scale) with respect to overall effectiveness in coping with class work. These ratings served as the basis for "effectiveness" scores used in the analysis of the data. Although instructors were briefed as to the purpose of the study, they had no part in helping the groups select leaders. In fact, instructors were not informed as to which students were selected as leaders. To estimate the precision with which instructors rated groups, they were asked to provide an additional rating of effectiveness for each group with respect to all other groups known to the rater through previous experience. Finally, term grades were obtained for each *S* for further analysis of the data.

D. Results

As Table 1 shows, leaders and members differ significantly with respect to scores on the Pt scale; but no differences were observed with respect to scores on the Hy scale. A two-tailed test was employed for both analyses because

TABLE 1
Comparison of Mean Scores of Leaders and Nonleaders on Hysteria and Psychasthenia

Group	*N*	Hysteria* *M*	Hysteria* *SD*	Psychathenia** *M*	Psychathenia** *SD*
Leaders	42	21.70	8.35	7.93	4.86
Nonleaders	244	21.39	14.63	8.87	9.76

* Difference between leaders and nonleaders not significant.
** Difference significant at the .01 level (two-tailed test).

direction of difference was not predicted. Hypotheses 1 and 2 were thus verified indicating that the Pt scale differentiates leaders from nonleaders.

To test the hypotheses regarding the relation between personality scores of leaders and group effectiveness, groups were assigned either to a high- or low-effectiveness category, depending on the rating given by the instructor. Since a seven-point scale had been employed, all groups receiving a score of five or better were allocated to the high-effectiveness category; all groups receiving a score of three or less were allocated to the low-effectiveness category. Out of a total of 42 groups participating in the study, 16 were designated as High Effective and 15 as Low Effective. Analysis of leaders' Pt and Hy scores in the high- and low-effectiveness groups is shown in Table 2. Again differences on

TABLE 2
COMPARISON OF MEAN SCORES OF HIGH- AND LOW-EFFECTIVE GROUP LEADERS ON HYSTERIA AND PSYCHASTHENIA

Group effectiveness rating	*N*	Hysteria* *M*	*SD*	Psychasthenia** *M*	*SD*
High	16	20.80	7.62	7.12	4.23
Low	15	21.30	12.05	8.53	8.12

* Difference between high-effective and low-effective leaders not significant.
** Difference significant at the .05 level (two-tailed test).

the Pt scale occur, but fail to appear on the Hy scale, thus hypotheses 3 and 4 were confirmed.

Additional analysis of the data concerns the comparison between term grades of leaders and nonleaders, a comparison between grades of leaders of the high- and low-effectiveness groups, and the relationships existing among Pt scores, term grades and SAT verbal scores, the latter serving as an approximation of general intelligence. The crucial question is whether group leaders were chosen merely because they were better students than the nonleaders, were more intelligent, or because they possessed greater leadership ability. In case of the first alternative, effectiveness of leaders could be based on their ability as students rather than on personality. To explore this possibility, an additional analysis was carried out concerning the difference in grades between high- and low-effectiveness leaders. The purpose was to determine whether effectiveness as a student could explain or account for the higher effectiveness ratings given the groups by their instructors. Table 3 shows the comparison of grades for high- and low-effectiveness leaders. The obtained chi square is not significant and indicates that student effectiveness is relatively independent of group effectiveness.

TABLE 3
DISTRIBUTION OF GRADES FOR HIGH- AND LOW-EFFECTIVE GROUP LEADERS

Grades	Group-effectiveness ratings		Total
	High	Low	
A	9	2	11
B	6	8	14
C	1	5	6
	16	15	31

Note: Chi square (after Yates' correction) = 4.74; $df = 2$; $p = .10$, one-tailed test.

A similar analysis comparing all leaders (whether of the high- or low-effectiveness groups) with all the nonleaders with respect to term grades yielded different results, as shown in Table 4. Thus, a second striking difference between leaders and nonleaders was obtained. Leaders were evidently more effective as students than were other group members. Table 5, however, shows that measures of student effectiveness (term grades), intelligence (SAT verbal scores) and personality (Pt scores) are essentially unrelated.

TABLE 4
COMPARISON OF GRADES FOR ALL LEADERS AND NONLEADERS

Grades	Leaders	Nonleaders	Total
A	12	17	29
B	19	72	91
C	11	103	114
D	0	14	14
	42	206	248

Note: Chi square (after Yates' correction) = 19.66; $df = 3$; $p = .001$.

TABLE 5
INTERCORRELATIONS AMONG ACHIEVEMENT, INTELLIGENCE, AND PERSONALITY MEASURES

Measures	1	2	3
1. Term grades			
2. SAT verbal test	.00		
3. Psychasthenia (Pt)	—.13	—.01	

Note: $N = 85$ (based on available SAT verbal-test data); r greater than .21 required for significance at the .05 level.

E. DISCUSSION

Results indicate that classroom discussion-group leaders differ from nonleaders on two dimensions: (*a*) they score *lower* on the psychasthenia scale than do nonleaders and (*b*) they receive *higher* term grades from their instructors than do nonleaders. At first glance, it would appear that the individual most motivated to assume leadership functions for the group, and

the individual whom the group voluntarily prefers, is the individual who is also most efficient as a student. An analogous study completed about a decade ago (2) found that greater satisfaction occurred among members of conference groups when the leader's functions were centered in him alone. Members were satisfied to do as little as possible as long as the leader demonstrated competence, did most of the work, and satisfied the members' need to feel that they were achieving locomotion toward a specified goal. It seems, then, that group members generally respond to the reinforcement or reward provided by the leader and in turn tend to reward him by following his direction.

No claim is made in this discussion to discount the important effect of leaders' academic achievement on group action. But does academic achievement completely explain why specific individuals emerge from the group as leaders? I think not. From the data obtained in the present study, two arguments can be advanced to support a personality-oriented explanation. (*a*) Not all group members receiving grades of A or B emerged as leaders. In fact, in several of the groups, leaders received even lower grades than some of the members. An analysis of leader and nonleader grades in the 42 groups revealed that in only nine (or 21 per cent) of the groups did the leader achieve a better grade than all other members. In 16 (or in 38 per cent) of the groups, at least one or more of the members *achieved better grades than did leaders.* Since the calculated probability of leaders achieving higher grades than nonleaders is .20, the obtained proportion of .21 is not significantly different from chance. (*b*) No significant difference in term grades occurred between the high- and low-effectiveness leaders (see Table 3), nor was any relationship among intelligence, achievement, or personality variables obtained (see Table 5). This appears to be an even more potent argument. It implies that motivation for leadership is due to an effect that occurs in combination with high academic achievement. The results reported in Table 1 imply that a low Pt score is functionally related to leadership emergence in a discussion group. Therefore, an attempt to explain why high and low scores on the Pt scale are related to leadership emergence is in order.

Two approaches may be taken. First, in a previous research (8) it was found that an individual's score on the Pt scale is related to his speed of decision, as measured by a decision-time apparatus. Those who scored high on the Pt scale were identified as "slow deciders" and those who scored low were identified as "fast deciders." This result suggests that the Pt scale is a measure of the speed with which people make decisions. Second, since the MMPI basically is a clinical instrument, the Pt scale is also a measure of the extent to which an individual's personality functioning contains elements of obsessive-

compulsive behavior. Since such obsessional characteristics are clinically descriptive of the ruminating type of individual (with intellectualizing and rationalizing defenses), it appears that slow-decision making and ruminative behavior are conceptually relevant personality characteristics.

If the Pt measure is an indicator both of the speed with which people make decisions and of obsessional characteristics, the fact that leaders and nonleaders differ significantly on the scale assumes significance for leadership theory. Apparently, *absence* of the characteristic measured by the Pt scale is related to the kinds of personal qualities that group members associate with leadership. On the other hand, the *presence* of such characteristics apparently is detrimental to group recognition of a leader. It is interesting to note that the potency of the scale extends into the domain of group effectiveness as well. Table 2 shows that leaders of low-effectiveness groups received higher Pt scores than did leaders of high-effectiveness groups.

F. Some Theoretical Considerations

1. *'Predecision Behavior and Leadership*

The following comments are admittedly *ad hoc* with respect to the results of the present study. They are offered, however, to provide a framework for further exploration of the decision-making process as an aspect of leadership. Theories of decision processes, as well as researches in this area, are relatively meagre—even though theorists of social organization, such as Simon (13) and Barnard (1), have indicated a need for more adequate psychological treatment of decision making in organizational structures. Studies dealing with mathematical models of decision making have appeared recently, but are of limited psychological value. Festinger's theory of cognitive dissonance (9) and related studies are of more psychological interest, but Festinger approaches the problem of decision from the point of view of the individual's behavior *after* the decision has been made. For our purposes, emphasis on *predecision* behavior is more relevant.

One concept offered by Lewin (12) with respect to tension systems that are aroused when the individual finds himself in a state of indecision is pertinent to the problem investigated in the present study. Horwitz and Lee (11) elaborated on Lewin's notion by demonstrating that individuals may find themselves either in a state of decision or indecision and are thus in either a low- or high-fluid behavioral field. In either of these two fields, the aroused behavior is designed to reduce the psychological distance between the individual's present position and his goal. Horwitz and Lee showed that when an

individual is in a highly fluid cognitive structure, a strong tendency is induced toward a restructuring of cognitions in the direction of *wish fulfillment*. On the other hand, when the individual is in a low-fluid cognitive structure or field (i.e., is in a state of decision), cognitive restructuring is minimized in favor of specific *actions* designed to reduce psychological distance between himself and his goal.

The results of the present study lend themselves to similar interpretations of decision-making dynamics in terms of high- and low-fluid behavioral fields, as reflected in specific personality factors. Thus, low Pt scorers can be assumed to function in a low-fluid behavioral field since they consistently tend to be fast decision makers. As such, they are "action oriented" and more likely disposed to initiate action designed to reduce the psychological distance between the self and the goal. This behavior is most likely to be of a decisive nature. By the same token, high Pt scorers are more indecisive, more disposed toward wish-fulfillment attitudes and most likely to defer action until "carried along" by the decisiveness of others.

Since both studies demonstrate that aspects of decision making can be studied from the personality-characteristic point of view and can be experimentally induced through experimental manipulation, it would appear worthwhile to explore personality and situational variables in interaction. An experiment could be designed in which situational factors are varied in order to induce high- and low-fluid states in individuals while holding personality characteristics, i.e., speed of decision, constant. Replication with situations held constant and personality varied should indicate whether these determinants interact in leadership behavior.

2. *Neurotic Tendencies and Leadership*

A further consideration is offered with respect to the clinical implications of high and low scores on the Pt and Hy scales of the MMPI. Dahlstrom and Welsh (6) have suggested that the Pt scale is a "neurotic indicator." This raises the question as to whether or not leaders can be considered to manifest less psychopathology than nonleaders since the latter tend to get higher scores on the Pt scale. Two possible interpretations are suggested regarding the presence or absence of neurotic tendencies as an aspect of leadership behavior. First, low Pt scores of leaders suggest that at least among normals (*cf.* the lack of differentiation between leaders and nonleaders on the Hy "normality" scale), the absence of obsessional personality features constitutes a prerequisite for motivating individuals to initiate leadership acts. Second, low Pt scores might also be construed to indicate the operation of a denial mechanism in which the

neurotic characteristics implicit in the high Pt score are effectively repressed. The question here is whether leadership behavior is to some extent correlative with defense mechanisms commonly observed in reactive hysterical individuals.

An experiment to test these two notions can be designed so that leaders who characteristically employ denial as a defense mechanism can be compared with others in whom the mechanism is absent. Eventually, an experiment can be designed combining both the social-personality and clinical concepts and leading to the possible formulation of a more comprehensive theory of leadership.

G. Summary

A total of 42 classroom-discussion groups were employed in a field experiment dealing with leadership behavior. Leaders were identified by group members on the basis of a rank-order peer-nomination technique. Leaders were found to score significantly lower than nonleaders on the Pt scale of the MMPI. No differences between leaders and nonleaders were found on the Hy scale. Leaders of groups rated by instructors as highly effective in problem solving scored lower on the Pt scale than did leaders of groups rated by instructors as low in effectiveness. The Hy scale failed to differentiate between the two types of leaders.

Emergence and effectiveness of leaders were discussed in terms of speed of decision as an aspect of personality. The results imply that a distinction can be made between leaders and nonleaders with respect to the absence of obsessional tendencies, such as indecisiveness, overcautiousness, vacillation, etc., as reflected in high scores on the Pt scale.

Several suggestions were made for further research integrating the clinical aspects of personality and situational variables.

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